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THE INDIANS OF THE DEPARTMENT OF CUZCO

By OSGOOD HARDY

IN no country of the world is the elevation of the earth's surface a more dominating factor in the determination of the life and characteristics of the inhabitants than in Peru. Situated as it is only a little south of the equator, altitude determines what crops shall be raised, what clothing the inhabitants shall wear, and of what material their houses shall be built. As the country is still relatively low in the scale of civilization, and there is little modern industrial life, the response to the importunities of nature is very great; in fact it is so great and follows such regular rules, that with an accurate topographic map at hand, one who has spent a few months traveling in the Department of Cuzco can describe quite accurately the physical characteristics, the customs, and the economic life of the natives in any given locality of the department, whether he has visited it or not.

This section of Peru divides itself naturally into three zones whose differentia is altitude. These are, first the highlands or belt of puna, devoted to grazing and potato farming which is carried on throughout the country from 12,000 feet above sea level upwards to nearly 15,000 feet at times; second the cereal belt, included between 12,000 and 7,000 feet; and third, below 7,000 feet, the belt of tropical agriculture.

The boundary lines, of course, are not exact, and the three belts shade into each other, but the character of the Indian life in each section is so different that a discussion of Cuzco natives must, if logically carried out, bear these natural divisions constantly in

mind. With these divisions in mind then, the various features of Quichua Indian life will be dealt with as they impressed themselves on the writer during the year and a half spent as Chief Assistant and Interpreter of the Peruvian Expedition of 1914-1915, sent out under the auspices of Yale University and the National Geographic Society, and directed by Dr. Hiram Bingham.

The Indians of the Sierra have the least mixed blood and the mixture increases as one goes lower. Those of the towns have a greater mixture than those of the *fincas* or *haciendas*;¹ the latter in turn have a greater percentage than those who live in the outlying districts. There are few towns or parishes of over 200 in which the *mestizoes* do not outnumber the pure Indians; Chincheros—three and a half leagues from Cuzco only, but off the main trails—is the chief exception. With a population variously estimated at from 500 to 1,000 it has not over 20 per cent. mixed blood. On the other hand such places as Urubamba and Ollantaytambo probably cannot boast of more than 25 per cent. pure blood. The figures are only estimates as no data can be secured. On the plantations, the percentage of pure-blooded Indians is probably still less.

In physique the Indians of the Sierras are much more attractive than those of the lower regions. Bronze skinned, of medium height but with huge chest expansion and wonderful leg development, some of the men of the *punas* present a striking appearance. Those of the lowlands, although lighter in color, are generally more ill favored and lack the ruggedness of feature possessed by those of pure blood. They are smaller, less healthy, and show more marks of dissipation. The pure-blooded women are rarely attractive. In fact only in Huaracunda did I ever see an Indian woman who was not either too rotund or too emaciated in appearance. The two exceptions were sisters, of a beautiful copper complexion, fine cut features, of average height, with a good carriage, and exceedingly neat. The chola women of the Urubamba section are more attractive than their men, with more regular features, but very much inclined towards obesity, a characteristic acquired with their Spanish blood.

¹ A *fincas*, corresponding to our term, farm, is an estate in the cereal and *puna* belts; an *hacienda* is an estate corresponding, in the tropical belts, to our southern plantations.



"In many of the glacial valleys the inhabitants are afflicted with huge goitres, which naturally give them a most unprepossessing appearance. Goitres are equally common among men and women."



Residents of Huaracundo, twenty-five miles from Cuzco.

Practically all the natives have dark hair and eyes. The hair, straight and unkempt, is usually short. The men have theirs cut semi-occasionally, or perhaps it is better to say, haggled off. The women also cut theirs at times, but even when it is allowed to grow it is rare that it comes below the shoulders. In many of the glacial valleys the inhabitants are afflicted with huge goiters, which naturally give them a most unprepossessing appearance. Goiters seem to be equally common among men and women. The ravages of smallpox have also disfigured a great many.

For the most part the natives have poor health. All seem to be troubled with catarrhal affections, these being more common in the higher altitudes. Smallpox and fevers of various kinds are common also. The inhabitants of the tropical belts are inclined to be pot-bellied, as a result of malnutrition I suppose. I could find no evidence of large families, four being the greatest number of children to which any Indian would admit. This is probably due to a high infant mortality rather than to a low birth rate. Eye troubles seemed prevalent, for which kerosene was the favorite remedy: in fact, in the higher altitudes it is used as a specific for almost any disease.

There is a great variation in the matter of dress. In the uplands both men and women keep to their old style of clothes, but as one goes down, modern styles appear; until in the tropical belt the stiff, broad-brimmed hat and the hand-woven poncho have disappeared entirely. The man of the uplands is clothed in rawhide sandals, close-fitting knee breeches of brown homespun, held up by a hand-woven, many-colored belt, a V-yoked, sleeveless, homespun shirt, usually blue in color, gray woolen sleevelets, a variously-colored poncho, a close-fitting woolen cap, and a broad-brimmed, stiff, reversible hat, covered with red woolen cloth on one side and black velvet on the other. The length of the breeches varies somewhat: in Marcacchocha, above Ollantaytambo, they come halfway between the knees and the ankles, are split up to the knee at the sides, and much ornamented with pearl buttons. In most places they are plain and come only to the knee, and quite often scarcely to it. When at work the Indian protects his breeches by wearing

a sort of homespun apron, this often of untanned cow-hide. His woolen poncho serves as raincoat, blanket, and knapsack, as the need may be. It is usually of many-colored stripes. The coloring and width of these vary in different localities, as does the coloration of the hat, so that one who makes a study of it can, by the appearance of an Indian's poncho and hat, designate the neighborhood from which he comes. As one goes lower, the men's breeches are observed to be getting longer, until in the tropical belt they have become trousers. Here homespun disappears and machine made cloth is used. Cotton takes the place of wool, and a man's clothes consist of a battered felt hat, cotton shirt, a cloth or leather belt, and cotton trousers, usually homemade. Throughout all sections the pouch for carrying coca is so necessary an appurtenance that it may be considered as part of the dress. It is sometimes a woolen bag, but more often it is made of untanned cowhide.

The same general differences may be noticed in the case of the women. Skirts get higher along with the altitude, until at some places, such as Marcacocha, they scarcely reach the knee, and give a decidedly fashionable effect. In the highlands the woman's hat closely resembles the man's (usually a bit smaller in circumference), but she never wears the woolen skull cap. To match the poncho she has a *lliclla* or shawl, the upper corners fastened in front with a silver pin or *topo*. The head of the *topo* usually has the shape of the bowl of a soup spoon; its shaft is like an enlarged hat pin. It is often decorated with several small emblems such as a fish, sun, or star, hanging by means of small chains about two inches long. The *topos* are quite apt to be rather old, and to have been handed down for several generations. It is usually difficult to buy them, but while I was in Ollantaytambo, one financially embarrassed old woman parted with one for four soles (\$2.00 gold). In Chincheros all the women seemed to have a new and an old *lliclla*, the latter worn around the shoulders all the time, and the former used as a head covering at Mass. After the service this was carefully folded up and put away until brought out again the next Sunday. The short-sleeved waist is open at the neck. Like the waist, the skirts are usually solid-colored, and among the highland women almost

always of a dark blue. As one goes lower, there is noticed a gradual lengthening of the skirts (likewise an increase in number). A felt hat takes the place of the broad-brimmed, stiff hat, and machine-woven cloth that of homespun. The *lliclla* becomes smaller and the solid colors more striking, usually pink or blue. The waist is commonly a nondescript color, possibly at one time white. The skirts are much more vivid; light blues, pinks, and greens predominate. It is said that the wealth of a valley woman can be told by the number of skirts she has, as each new one is put on over the rest, and the old ones kept till they drop off.

The home of the highland Indian is a crude affair, about ten feet square. The walls are of stone and mud, and the roof is thatched with *ichu* grass. There is no chimney and the smoke from the cow and llama-dung fire, built for cooking, never for heating purposes, makes its escape through the interstices of the roof and walls, and oftentimes through the upper part of the low doorway. There are no windows, for fresh air is considered man's greatest enemy. The hard ground serves for a floor. Household furniture is extremely simple, consisting of several earthenware plates and cooking *ollas* (occasionally an iron kettle), a few wooden spoons, sheep skins, and woolen blankets. Oftentimes an old muzzle-loading 16-20 gauge shotgun will be seen standing in one corner. A rude native axe, hoe, spade, and hunting knife usually make up the stock of tools.

In the cereal belt the houses are more apt to be built of sun-dried bricks (*adobes*), made of clay and straw. Quite often the *adobes* are only blocks of turf 10 x 4 x 24 inches, cut out and dried. Furnishings are the same, excepting that the long, curved-handled, narrow-bladed spade will probably be missing, as it is used chiefly in connection with potato culture. Its place will then be taken by a sickle used in harvesting grain.

In the tropical belt the roofs are still of thatch, but small poles and bamboo canes are used for walls. In the upper part of this belt, the sides of the houses are more often plastered, while in the lower regions there are sometimes no walls, a roof which will keep off the rain and sun being all that is necessary. The sickle is re-

placed here by a *machete*, or long knife, used for cutting sugar-cane, and sometimes there will be a brush hook. In these huts one quite often finds a table of bamboo canes lashed together; beds are sometimes made in the same way. As the huts are more open and wood is plentiful, the interiors are not so dingy and smoke-ridden as the houses in the higher altitudes. In all sections one meets Indians who own a horse or two and in such cases crude paraphernalia for packing will be found. In the highlands the rope is more apt to be woolen, while in the lowlands it will probably be of some fiber.

Food varies of course, but maize is the staple diet everywhere, although used only in small quantities in the tropical belt. In the highlands the menu consists chiefly of corn, parched or boiled, and stews. These are made of potatoes, either in their ordinary state or treated so as to make *chuña* or *moraya*,¹ *occas*, and *años* (two edible roots like nothing we have in this country), corn, various flavoring herbs, peppers, *habas* beans, and meat. The latter may be either mutton, pork, or beef. Beef is rare, as few of the Indians own cattle, and if they do, they cannot afford to kill them for their own use. Sometimes they can buy beef, but not often. Occasionally a llama dies, and in that case llama meat will be on the bill of fare for some time. Once or twice a year a skilled hunter may succeed in getting a deer so that occasionally they have venison. Probably no section of the world, seemingly so wild, has so little game; in fact there is so little that it is a negligible factor in the discussion of the Indian's food supply. As the temperature rarely goes above 40° F. even at midday when the sun is shining brightly, meat will keep indefinitely in the highlands. There is then no danger of loss when a creature as large as a good-sized bull is slaughtered for the use of a single family. Only the horns and hoofs of an animal are wasted. The intestines are a great delicacy, and I saw one case where the blood of a sheep was saved, allowed to coagulate, and then boiled. During the potato harvest it is quite common to see a group gathered around a small fire in which some new potatoes have been roasted. This is called having a *huati'a*.

¹ This treatment consists in alternately soaking and drying the potatoes, several times until they lose all their moisture and can be crushed into a flour which will keep indefinitely. This is called *chuña*. When the potatoes are also allowed to freeze during the process, they give a black flour which is called *moraya*.



Residents of Santa Rosa, fifty miles from Cuzco. A comparison of these Indians with those of Huaracundo will show some of the differences in the styles of clothing between different localities.



Typically dressed women of the cereal belt. They are engaged in setting up, for the benefit of the gringo onlookers, a curious cradle in which the baby is to be placed upright. Their clothing shows that they live midway between the highlands and the lowlands for the *lliclla* of the woman with the baby is that of the puna dwellers, while the other two have shawls made of machine woven cloth.

In the cereal belt the diet is vegetarian. Stews still are the favorite form of hot food, but there is less fresh meat here. Guinea pigs are to be found in most of the houses and are esteemed a great delicacy, especially baked or roasted on a spit. In towns such as Oñantaytambo, beef can always be bought on Sundays, and mutton is for sale the rest of the week, but the Indians are not the heaviest purchasers. Onions, squashes, peas, red peppers, *habas* (a large bean something like our lima beans), and various vegetables used for flavoring purposes are eaten. A little tropical fruit in the shape of bananas and oranges is enjoyed, but not often, for it has to be brought up from the valleys and is relatively expensive. Temperate fruits, such as peaches, pears, plums, cherries, and strawberries, are plentiful in season and form a very pleasing diversion to the monotony of the diet. *Chuño* and potatoes do not form as great a percentage of the diet, while corn takes a relatively greater place. In this belt it is very commonly eaten as *mote* or hulled corn. Bread is more common in this belt than in the others, but it is not eaten in any very great quantities by the Indians.

In the tropical region the diet is quite different. Dried mutton (*chhaqui*) and an occasional chicken or guinea pig, with a little pork, is about all the meat the Indian has. There is very little livestock in this section and when a creature is killed it has to be eaten almost immediately, for meat will spoil over night. Potatoes are also but little eaten as they have to be transported quite a distance. Their place is taken by several very edible roots. Probably the best from our standpoint is the *camote*, a most luscious sweet potato or yam. *Yuccas*, *casava*, and *racachas* are also delightful features of their vegetarian diet. Onions are brought in from the cereal belt, but most of the condimentary vegetables, such as red peppers, are grown in great abundance. Oranges and bananas form a very important item in the native diet, while other kinds of tropical fruits such as pineapples, alligator pears, *chirimoyas*, and bread fruit are often enjoyed. Although coffee is grown at altitudes of about 8,000 feet, I never knew of the Indians using it. Bread is scarce, and expensive; it is eaten only by the whites.

Coca (the leaves of the plant from which is obtained cocaine)

is in common use at all altitudes. With the native beer, *chicha*, it can almost be classed as an article of food, so extensively is it used. It is one of the best paying products of the valleys and pack trains laden with it are constantly met on the trail. It is for sale at all the little stores along the way. With it, the traveling Indian is practically independent of other food supplies. *Chicha* can also be secured at almost any hut by the roadside, a bunch of flowers tied to the end of a stick projecting several feet out from the hut being the sign of its presence. A new bunch of flowers is always put out when a new brew is put on sale, and from the condition of the bouquet can be judged the age of the beverage. The *chicha* of the highlands is more often made of potatoes, but occasionally the corn *chicha* is imported. Rum is usually kept at hand, but the regular use of alcoholic beverages is not as common in the upper regions as in the other two sections. In the corn belt, *chicha* is a part of the daily diet, and about one fourth of a man's income is spent for this. In the tropical belt the fermented but undistilled cane juice is drunk, together with a great deal of rum. *Chicha* and rum constitute the drinks of the Indian, for while lager beer is made at two breweries in Cuzco, and can be secured everywhere, the Indian cannot afford to buy it.

The occupations of the highland Indian are stockherding and potato raising. Most of the stock belongs to the owner of the *finca* but the Indian is allowed to pasture his own sheep and cattle with the rest. These are not many, although I found one Indian who claimed to own forty sheep, fifteen cows, and two pigs. He paid ten soles (\$5.00 gold) a year rental and had to work one week each year for the *finca* owner. Potatoes are grown on the hillsides. The turf is turned up by the Indian with his narrow-bladed shovel or spade. His wife or some of his children accompany him, turning the clods and breaking them up. The stock are usually herded by the smaller children who become shepherds almost as soon as they can walk. Nondescript sheep dogs help them and the ancient sling is still in active service. Some of the miniature shepherds are quite adept in its use. The women of the family, in addition to working in the fields, do the cooking and weaving, although they



A typical hut on the lower edge of the cereal belt. On the thatch roof are seen stalks of *quinua*, a cereal-belt grain, which have been brought down to the lower altitude to dry.



"Coca (the leaves of the plant from which is obtained cocaine) is commonly used in all altitudes. It is one of the best paying products of the valleys and pack trains laden with it are constantly met on the trail."

are often helped in the latter by the men. The life of these highland Indians is wild and untrammelled. Only when they go to the *fincas* to perform the few days labor which they owe as rental, or when perhaps they go to one of the smaller towns to celebrate a feast or barter some of their mountain produce, such as potatoes, hides, or wool, for some of their meager necessities like *chancaca* (brown sugar) or salt, do they see very much of their fellow men. They move as lack of pasture may demand, but always to some spot as wild and desolate as that from which they came.

From the standpoint of occupations we can distinguish two divisions in the cereal belt. In the upper, some potatoes are grown, but the chief products are wheat and barley. For the most part the Incas live on the *fincas* and are employed on them the year round. These, together with those highland renters who come down only at harvest and planting time, and some few renters who live in the villages nearby, perform the labor. In some towns, as Chincheros, and Pucyura-in-Vilcabamba, there are a number of independent farmers who cultivate their own little plots of ground. Oxen and wooden plows prepare the land; sickles reap the ripened grain; wooden flails thresh it; forked sticks and wooden shovels fan it; and burros and llamas carry it to the *finca*, and then to the market.

In the lower division of this belt, corn is the chief product with a little barley and alfalfa grown for fodder. The Indians are compelled to work for the owners of the *finca* during the planting period and the harvest, for in this region practically all the land belongs to large estates. In the intervals between the sowing and reaping, the Indians are privileged to grow a little stuff on the small plots of land which are given them along with their huts. Pay varies according to the privileges given and the amount of work required of the individual, but in the cereal belt it is rarely more than fifteen cents gold a day. Between the periods of heavy labor, many of the natives who live in or near towns often engage at day labor as masons, hod carriers, etc. Some of them go as *arrieros* or muleteers, carrying goods to and from the valleys. Some towns, such as Maras, are noted for having the majority of their inhabitants

engaged in this trade. In the case of the Mareños, the women are usually found accompanying their men. Other towns have the commercial spirit, developed more among the women than the men, and the road between Cuzco and Urubamba, especially in strawberry season, is constantly dotted with small caravans of *cholas*, Indian women, who are going to or from the market at Cuzco.

In the tropical belt, the Indians are employed in the various sugar and coca plantations. In the latter both men and women are employed, for the women are faster at picking the leaves than the men and do not have to be given as much pay for an equal amount of labor. The men have steady employment, receiving a minimum wage of fifteen cents gold a day. In addition, they receive, rent free, a small hut with a patch of ground on which to cultivate their sweet potatoes, yucca, and bananas, which form the main articles of their diet. Those who live a few miles distant from the plantation have more land for these purposes. As a very little labor will produce most of their food, the Indians of the tropical belt have no trouble in avoiding starvation. As actual money is received in exchange for their daily labor, and food costs only a little time and energy, the lowland Indian has more capital to invest on clothes than has the highland Indian. Consequently the lower valleys provide a better market for "store clothes" than do the *punas*.

The hours of labor on the plantations are usually from 7:00 a.m. to 6:00 p.m., although in some of the places they start as early as six o'clock in the morning. At times in the cereal belt when the harvest is at its height, work will continue later than six in the evening. But as this section of Peru is only about 13 degrees south, it does not get light much before 5:00 a.m., even in the summer time, nor stay light later than 7:00 p.m., so that it is not possible to have the long hours which characterize the North American harvest day. The Indian usually starts work without having eaten anything since supper the night before, so that at nine o'clock or thereabouts he is given an hour for breakfast. Ordinarily the meal is brought to him by his wife or some other member of his family.



"The pureblooded Indian woman is rarely attractive. The women cut their hair at times, but even when it is allowed to grow, it seldom comes below the shoulders. The ravages of small-pox have also disfigured a great many."



One of the chief occupations of the highland Indian is potato raising. This shows one of them engaged in turning up the sod with his long-handled, narrow-bladed spade.

The children accompany her and all eat together, the man being served first. At twelve o'clock, a half hour is given for drinking *chicha* and chewing *coca*. Sometimes the *chicha* is brought by the women, often however as was the case when the work was going on at *Yankihuasi*,¹ one of the men will collect ten cents in advance for all of them and bring back a huge olla containing several gallons of it. At four comes another rest of an hour, this time for supper. I found the Indians rather afraid that I would try to deprive them of several minutes of rest, but after they learned that I played fair there was little trouble in getting them started again. They keep at their work as steadily as the average unskilled labor in this country. They are accustomed to a certain amount of abusive language and expect it, but I found at *Yankihuasi* that the majority could be depended upon to work along as best they could even when I was not around. Some of them actually came to take an interest and pride in their work.

As might be expected, the methods of work are everywhere rather antiquated in almost every line of endeavor, although it is quite true that some of the larger establishments are taking on more modern ways. This often leads to a very interesting mingling of the old and the new: as when on a sugar plantation equipped with electric lights and modern stills, cultivation is done by oxen and wooden plows.

Old and sometimes unique methods are particularly exemplified in building operations as I found out at Ollantaytambo. During the reconstruction of *Yankihuasi*, I attempted to apply some North American labor methods. I purchased two modern wheelbarrows, only to have them lie idle for the first three weeks, until I succeeded in partially educating several Indians to their use. I decided that a longhandled shovel would save their backs—but in ten minutes after they had received them they had thrown them aside and were doubled up with their shorthanded, acute-angled, hoe-like spades.

¹ *Yankihuasi* (house of the Yankee) was the headquarters of the Peruvian Expedition during 1915. As no suitable place existed in Ollantaytambo, a small dilapidated establishment was rented and five weeks of strenuous labor on the part of some thirty-five Indians and *mestizoes* under the direction of the writer, was necessary to make it ready for occupancy.

I made four ladders on an American pattern, but the Indians never ceased to complain because the treads hurt their bare feet. I wanted them to carry mortar in a trough-like receptacle such as is used by our hod-carriers,—but no, skins had always been used, since Ollantay himself had lived there.

Earth for mortar was dug with a hoe. Much treading served to mix the straw with the mud, and give it the right consistency. Both mortar and stones were carried to the wall in goat skins, and were there put in place by our scantily-utensiled mason. Two Indians mixed the mortar, three carried it to the wall, and two brought stones: thus seven men in all were required to tend one mason.

Walls are commonly whitewashed with chalk. After the chalk has been ground and strained, it is mixed with a thin gelatinous liquid made from the juice of cactus and water, containing as much salt as can be taken up in solution. This fluid is supposed to make the whitewash less likely to rub off and it serves its purpose well. It is applied with brushes made by the Indians from *ichu* grass which is brought down from the highlands above, and also serves as straw for the mortar.

Quichua, the language which the Inca forced upon all the conquered tribes of the Andean plateau, is rarely used in the coastal districts and most of the upper class in the large cities such as Lima and Arequipa have, or affect, an ignorance of their native tongue. However, in the highlands of Cuzco, it is almost entirely spoken even by the *mestizoes*, and a great many of the pure-blooded whites not only never tire of praising its beauties, but rather despise the other Peruvians who are not acquainted with it. In its several dialects it is in use throughout the greater part of Peru, but the idiom of the vicinity of Cuzco is recognized as most like the language of the ill-fated Atahualpa.

A study of the language by a foreigner is made difficult by the fact that while there are grammars to be obtained, they are for the most part either identical with, or based on those made by the early Spaniards. Since the sixteenth century many words have dropped out of the language, syntax has changed, and various Span-



"The women of the family, in addition to working in the fields, do the cooking and weaving although they are often helped in the latter by the men." This resident of the upper cereal belt is very typically dressed excepting that his leggings are of untanned cowhide rather than of homespun.



"Between the periods of heavy labor on the plantations and farms, many of the natives who live in or near towns often engage at day labor as masons, hod carriers, etc."

ish words have been Quichuanized. In addition, early writers were very careless in their orthography and no clear distinction was made in the spelling of certain sounds which to the untrained ear are very similar. For example, the differentiation into its six different sounds of the Quichua guttural *c* or *k* is difficult when we have only the two characters, but it must be done to avoid serious mistakes. The absence of a slight click turns a "gentleman" into "a lake of grease" or a "gate of the rainbow" into "the door of a pig-pen."

To one with purely linguistic interests, the language should provide many attractions. Like all primitive idioms, it contains a great many compound words, some of which are quite ingenious. The adjective "imperceptible" is made up of three words, *accosayay-huchaylla*, meaning "the size of little sand." An "incorruptible" man is one who "does not turn to one side," *mana-huakllik*. "To inherit" is literally "to take the place of the dead one," *huañukpa-rantin-yaycuy*, while a "grave" is "the heart of the earth," *allpak-soncco*. "Experience" is a "ripe heart," *pocuscca-soncoy*, and "to experiment" is "to take hold on memory," *yayay-happiy*. A "fervent" man is one "having a beautifully burning heart," *sumak-raurak-soncco*; an "inconstant" man has his "heart on one side," *huaklli-soncco*. "Foreigners" are "those belonging to a city a great distance off," *caru-caru-llaktayoc*, and a "window" is a "hole that sees," *ccahuana-ttocco*.

A study of the language is of interest to the ethnologist as well as the linguist, for the flashlike glimpses which it gives of old Inca characteristics should be useful in understanding their descendants. For example, the Quichua tongue has no words for key or lock, which might indicate an abundance of trust in their fellowmen or an absence of valuable personal property, but the presence of words for lying, stealing, and all forms of drunkenness shows that there was room for moral improvement. This holds true today. The absence of words for buying and selling shows the simplicity of their economic life, while the importance of agriculture is demonstrated by their having one word, *llank'ay*, for our words "work" and "cultivate." That they had not gone far in philosophy is shown by a lack of words denoting abstract qualities, and where they do exist

they are evidently made words, *i. e.*, "hypocrisy" is *iscay-sonccoy-cay*, literally, "to be of two hearts." Pacifism was evidently known to them, for the same word, *auccay*, is used for "soldier" and "enemy."

The religion of the Indians is called the Roman Catholic, but the mixture of superstition and immorality which masquerades under that name in the Andes would not be tolerated by good Catholics in the United States. Although its influence varies in importance, it may be said to dominate the life of the Indians. It is strongest in the highland districts and the upper part of the cereal belt. At Chincheros practically all the residents of the parish were regular attendants at Sunday morning mass, men as well as women. In Ollantaytambo the hostile attitude of all the landowners seemed to have an effect, and although perhaps half of the Indians were intermittent church-goers, the excommunication pronounced by the local *cura* on all those who worked for us, had no effect in diminishing our labor supply. On the sugar plantations the influence of the church is maintained by a yearly visit of a priest at which time marriages, baptisms, and funeral services are celebrated for the past year. The fees in connection with these celebrations seem exorbitant when compared with the wages of the Indian, which are only fifteen cents per diem. Masses cost \$2.00 up; marriages \$3.50 up; funerals \$4.00; but baptisms are relatively cheap, as low as fifteen cents. As a result baptisms are relatively frequent, but a great many Indians die unshriven and even more pass their lives in unlawful wedlock. However, as far as I could find out, the lack of a marriage ceremony does not tend towards instability in the marriage relation, and it certainly carries no moral obloquy.

The greater hold of the church in the highlands is demonstrated in several ways. Even the common Indian greeting in the Sierras consists of the religious phrase "*Ave Mari'a puri'simal*" while in the lowlands the Virgin birth of Christ does not seem to be of so much importance, and they say "*Buenos Dias!*" The highland houses are much more apt to have small crosses fixed in the roof; in the highlands one finds more wayside shrines; all passes of course have their piles of stone surmounted by a cross—an adaptation no doubt

of the *apacheteas* of the Inca worship, but now possessing a Christian significance. With this exception I could find no evidence of the survival today of any features of the old Inca religion. The work of the early *padres* in substituting church feasts for those of the sun worship seems to have been complete and the mixture of religious ceremony and heathen superstition is absolute. Chincheros was the only locality which could boast of an equal percentage of male and female attendants at church services. Women usually predominate. The churches in all the towns are in a poor state of repair, they are typical of the general filth of the country, and the pictures and statues of the various saints are extremely revolting.

At Chincheros I came into closer touch with the actual Indian life than anywhere else and I was enabled to observe very well several of the more important feasts which took place. Life there was the more interesting because there is less mixture of the old and new in that locality than in any other place of its size in the department. Also, the relations between the church and the people are more untouched by the modern wave of doubt which is sweeping over even such a conservative country as Peru.

The people here are divided into twelve clans or *ayllus* and as the majority do not belong to any *finca*, they exercise quite a bit of self-government under the direction of the *gobernador*¹ appointed from Urubamba. The *Pongos*, *Yanacuna*, and *Ccupers* are the three leading clans and their representatives dominate affairs. At the head of each *ayllu* is an *alcalde*, elected annually. He is assisted by a young man called a *regidor*, who is also elected yearly. Both carry canes as badges of office. That of the *alcalde* is a large silver-topped and silver-banded affair, about four feet long; the *regidor's* is a slender piece of black palm wood, about three feet long with a cross carved at the top. Both are shod with points of iron several inches long. These are not the personal property of the users in most cases, but belong to some family which has had

¹ The *Gobernador* who holds the ruling office in all small towns is the representative of the Federal Government and is responsible only to the sub-prefect of his province, who in turn is responsible to the prefect of the department and the latter in turn to the President of the Republic.

one in its possession through a number of years, and rents it out annually to the *alcalde*.

The New Year's feast when the new *alcalde* takes office is the most important of the ten feasts in which every man who has a well-rounded life has to take part before he dies. These feasts are both civil and religious. The five civil feasts take place when a young man becomes of age, on his marriage, when his first child is born, at his appointment as *regidor*, and at his election as *alcalde*. Custom demands that on these occasions he invite his friends to celebrate. Part of this celebration is the performance of a mass by the *cura*, who receives no less than four soles (\$2.00) in money and an additional present of some livestock, usually a sheep. *Chicha* must be provided for all those attending. In addition there must be a group of professional dancers, and a band. Naturally this costs quite a bit of money, but the price is cheerfully paid, as it shows that a man is able to fulfill his duties. It is rightly named a *cargo*.

For the proper execution of the five more important religious feasts certain committees are elected each year and care is taken that no one shall have to serve twice on the same committee. This committee has to carry out a *cargo* as above outlined and if there is any failure to do what is considered the proper thing, such a person is sure to lose caste.

As these feasts are the most important events in the lives of the Indians, and as the way in which they are observed indicates clearly the state of their civilization, I will describe three of them.

The New Year's feast at Chincheros was the most interesting affair I saw in Peru. Since the previous Sunday the town had been quiet as a grave. The tumbledown houses showed no more life than the beautiful Inca wall which takes up one side of the plaza. But Thursday morning, the last day of the old year, brought with it an unaccustomed feeling as though something were going to happen. Perhaps it was the long-drawn-out wail of the conch shells which sounded at intervals summoning the people from far and near to get ready for the celebration, or possibly it was because the sun was shining brightly after many days of cloud and rain.



"In the tropical belts the Indians are employed in the various sugar and coca plantations." On the better regulated plantations, they receive their pay every Saturday night, and this shows the laborers waiting for their wages at the Hacienda of Huadquina. This is one of the most famous plantations in the Department of Cuzco, and its owner is the proprietress of an estate nearly thirty-five miles square.



"The Indian usually starts work without having eaten anything since supper the night before, so that at 9:00 or thereabouts, he is given an hour for breakfast. Ordinarily the meal is brought him by his wife or some other member of the family. The children accompany her and all eat together, the men being served first."

But whatever it was, I had that uncomfortably happy feeling of the small boy waiting for the circus parade. I tried to work at Quichua, but finally gave it up and devoted the next two days to being a part of Chincheros' biggest festival.

All day long from my vantage point on the adobe wall overlooking the *gobernador's* patio, I watched the Indians come trooping in, each party bringing its own wherewithal for a good time. In the lead were always both the old and the newly elected *alcalde*, clothed in picturesque festal garb. Gone was the customary reversible black and red hat, and in its place a new felt one. The poncho was longer, wider, and newer than usual, gaudy-colored and befringed. On their feet, usually sandalled or bare, were stiff black shoes—with no stockings—which plainly caused the wearer much suffering in return for the honor they conferred. Following them came a band, consisting generally of a fife or flute, snare drum, bass drum, and a conch shell or two. In one instance, there were several ear-splitting bugles. In the rear came the women and other members of the clan. On arrival obeisance was made to the *gobernador* and then *chicha* was dispensed to all. Several times it was offered to me, but I declined with thanks. The favorite receptacle for this dispensation was a shallow saucer. The advantage accruing to its use lay in the persistent tendency upon the part of the liquid to distribute itself over the face, hands, and clothes of the drinker. After everyone had indulged, the party left to pay a similar visit to other sections of the town. At first I thought there were a great many of these little groups, but soon I came to recognize the leading characters and discovered that there were only five or six who kept "repeating."

In the evening occurred the ceremony of the *despedidia* or leave-taking. In former years the new *alcaldes* had had to go to receive their *varas* or staffs of office, at Calca, some five or six leagues away, and it had been the custom to have a gathering the night before to wish them godspeed. Although now there is no longer any necessity for the custom, the ceremony has continued—probably because it furnished another opportunity for a convivial and "wet" gathering. At dusk that evening I joined the *gobernador's* party,

when escorted by four *alcaldes* he went to the main plaza. Here we found about a hundred natives drawn up in three groups representing the three main *ayllus*. In each group the men were separated from the women, and all were seated in a semi-circle. We climbed a dark, rickety flight of stairs to the town hall, or *salón municipal*, from whose balcony we could look down on the crowd. For several hours I stood there in the dark and watched the people below quietly and very decorously passing the jars of *chicha* from one to another. Although most of them were more or less intoxicated there was no loud talking, only the steady hum of low-pitched voices like that of a hive of bees. Every little while, the three leading *alcaldes*, assisted by their *regidores*, ascended, bringing *chicha* with them which they insisted on our drinking.

Although the celebration soon palled on me, the Indians spent the night in drinking *chicha* and marching around the town, stopping at different places for short dancing and drinking bouts. I went to sleep with drums and conch shells still sounding in my ears, and they were at it again the next morning when I awoke.

About nine o'clock, the morning of the New Year, the crowd began to assemble in the *gobernador's patio*. The *alcaldes*, both the newly elected and the previous incumbents, were attired in felt hats, long fur-lined military capes, some of which looked as if they had been handed down through the four centuries since the arrival of the *conquistadores*, gaudily trimmed ponchos, new homespun trousers, and stiff ill-fitting shoes. With so much more clothing on than usual, they were perspiring very freely, and their new shoes had already caused most of them to acquire a slight limp which was accentuated as the day went on. The women were there too, in all their best dresses, their hats garlanded with flowers and their clothes decked out in various ways with colored paper streamers. Although the dancing had not yet begun, several groups of fantastically clad clowns were in the crowd. Music was dispensed by a band of two snare drums, three bass drums, four conch shells, and one horn. The crowd was very good natured and only one fight occurred, caused by rival claims to a *regidor's vara*. At ten o'clock the signal was given for the *alcaldes* to gather in the *gobernador's*

salon to take the oath of office, and to officially receive the *vara*. The room was on the second floor, reached by a narrow staircase, up which only two people at a time could possibly ascend. But there were twelve old and twelve new *alcaldes* with as many more *regidores*, each one of which seemed to feel that the celebration would be a failure unless he arrived first. As a result, my memory of a six o'clock rush in the New York subway, or of a crowd leaving the Yale Bowl after the Harvard game, faded into insignificance before the confusion of this Chincheros drive. To add to the mix-up, when halfway up the stairs, several *alcaldes* decided that they did not need their hats or overcoats. They tried to descend, but finding that impossible, they contented themselves with throwing said unnecessary articles of clothing into the arms of their friends who were down below. Eventually all whose presence was desirable arrived, the oaths were administered, and the crowd started for church to celebrate mass.

On arrival we found it filled to the doors with kneeling Indians. I followed the *gobernador* to the front, where we dispossessed several Indians, who, arriving early, had taken the best seats in the synagogue only to be asked to move down. Not that they were worth much as seats, for most of the time we were either kneeling or standing, but we took them as a matter of principle; *i. e.*, to show the superiority of the whites. In our desire to secure the high places we neglected to do the first series of bowings and scrapings which were being carried on as we threaded our way through the kneeling crowd, but during the rest of the service we more than atoned for this neglect. I had attended mass before so by keeping close watch on the *gobernador* I managed to hold my own during the proceedings. However, I nearly beat a retreat towards the close of the mass when two sacristans in dirty white shirts and ragged red skirts picked up two silver implements, one a shield and the other a cross, took them to the priest who blessed them, and then carried them to the worshippers who kissed them. I tried to escape, but the wily church attendant was too much for me, and my only consolation was that I was among the first to have them shoved in my face.

After the service we all went to the plaza, stopping in front of the town hall where the *gobernador* announced that all young men who had come of age during the past year were called to military service. The priest who had, at the last election been made *Alcalde Municipal* (an officer corresponding more or less to that of Chief Selectman in a New England town), then read in both Spanish and Quichua the law in regard to military service. After this ceremony, we all went to the priest's house, escorted by quite a party which showed its affection for the *cura* by showering him with rose petals, while he reciprocated by allowing some of the women to kiss his hand. At his house lunch was served to the visiting celebrities. After the meal was over, the priest dispensed liquor to all those who had followed him from the church, giving a second round to the municipal band which had dispensed music to us during lunch.

By this time the center of activities had shifted to the *patio* of the *gobernador*, who on account of a bitter rivalry with the *cura* as to who should get the most graft from the Indians, was *persona non grata*, and so had not attended the luncheon. Here had assembled most of the *alcaldes* and during the afternoon the festivities were fast and furious. Each of the three more important *ayllus* had provided a set of dancers which took turns in performing. These men were dressed up in the garb of women, wearing weird and outlandish masks. The dance itself consisted of little more than a series of feet shufflings, while the dancers kept time to the music by waving a piece of white cloth about two feet square attached to a short stick. They danced a pair at a time, but once one pair, which seemed to be the prime favorites, repeated a dance while another pair was supposed to have the center of the stage—much to the disgust of the latter. Between dances the *gobernador* dispensed *aguardiente* (rum), while *chicha* flowed freely all the time. The band was allowed to imbibe occasionally, but they were supposed to keep the music going pretty steadily. The dancers made no noise with their mouths and even in their festivities, the Indians did not seem to get very far away from their natural taciturnity. About three o'clock the crowd left the *gobernador's*, but the festiv-

ities were kept up the rest of the day and far into the night in other localities.

Although the feast officially terminates on New Year's evening, it is kept up intermittently into the Feast of the Kings, which comes the 5th, 6th, and 7th of January. On the 6th occurs another big day similar to the one just described. It had two added features. At the church, the *alcalde* in charge of ecclesiastical affairs had his staff blessed for him, and a small image of the Christ child was taken in solemn procession from the *gobernador's* house to mass and back again. Most of the *alcaldes* took part in this procession, which was carried out with all the pomp the little village could bring about.

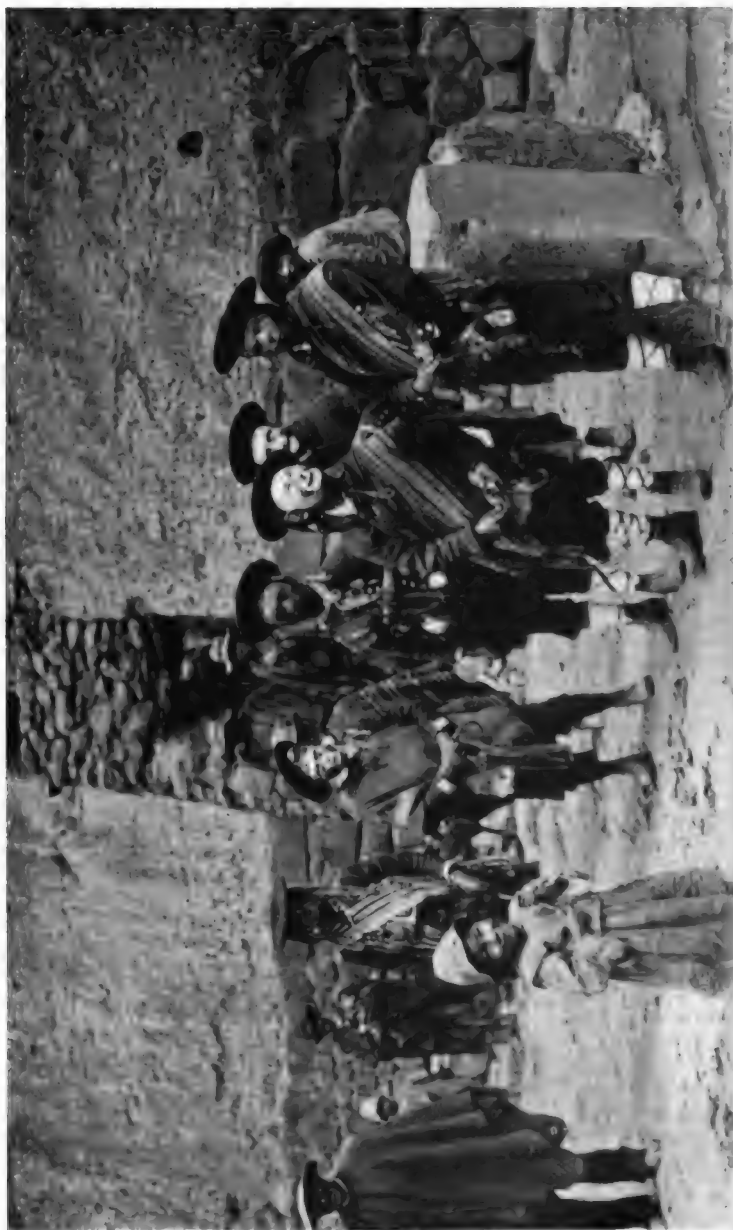
On Compadres' Day, February 4, I attended a feast at Marcacocha, about three leagues northeast of Ollantaytambo. The name is applied to a small valley in which is a deserted chapel. The region around here was formerly thickly settled, but the inhabitants left and now only the chapel remains. This is famous as the residence of a small image of the Christ child which tradition states left the altar one day to play with a young girl who had entered the chapel, and who later as result of this indiscretion on the part of the chalk image gave birth to a child. The celebration on Compadres' Day is in commemoration of this remarkable event. (It might be added here that it is not at all uncommon to find a lonely, deserted chapel used only once a year for the celebration of some feast when large numbers of people gather from all sections. One of these, held in July at a large church in the vicinity of Maras, is the occasion of the most celebrated horse fair in the department.)

Merchants and vendors of knickknacks, cooked foods, and alcoholic beverages had arrived at Marcacocha the day before and had set up temporary booths on a little flat not far from the church. On the feast day, some two hundred of the residents of nearby towns and villages came to enjoy the festivities, a number coming from as far as Urubamba. During the morning the time was spent in renewing old acquaintances and getting drunk. At noon a free lunch was dispensed to visiting celebrities. At two o'clock mass was held by the priest from Ollantaytambo, after which the "infant" was given his yearly promenade. Placed on a gaudily-decorated

throne, it was carried several yards along the mountain trail, which happens to be level just here, on the shoulders of religious volunteers, desirous of performing a pious act. In several instances women became so enthused that they offered their shoulders to the burden for brief intervals. Every few rods the assemblage stopped and the *cura* went through a brief service. Eventually the image was returned in safety to the altar where it was to rest quietly another year.

Dancers performed at intervals during the day, and held the scene while the small plaza was being prepared for a mock bullfight. No killing was to take place, for bulls were too valuable, but those desirous of becoming famous as bull-baiters were to be given their chance. It took quite a while to build a pen in which the bull was to be baited before being turned loose into the plaza, and still longer to get the animal aroused. Even so, when the bull was finally forced into the ring it calmly looked the crowd over and withdrew. The same thing happened with the second and also with the third bull. Accordingly as prospects of excitement along that line did not seem good, and as the master of ceremonies could offer none other than licentious inducements for a further stay we left the scene of operations early in the afternoon.

The only important feast which I saw in Ollantaytambo was the Feast of the Trinity, which came on Sunday, May 25. The festivities of the day were in charge of three separate *patrones* who had to provide dancers, costumes, and intoxicants. These *patrones* in each case were *mestizos* of mixed Spanish and Indian blood, and seemingly a step above the ordinary Indian. The first group I met was composed of six Indian men, dressed as usual, excepting for having black shoes, white stockings, colored paper streamers attached to various parts of their clothing, and hideous masks on their faces. Their dance, performed to music furnished by a flute and bass and snare drum, although for the most part consisting of the same sort of shuffle which characterized all the dancing, had one unique feature. Towards the end, one of the performers pretended to be dead. The others then picked him up and carried him by means of the decorated slings, which were appurtenances of their



"The first group I met was composed of six Indian men dressed as usual, excepting for having black shoes, white stockings, colored paper streamers attached to various parts of their clothing, and hideous masks on their faces."

dress, to a little distance, and then dropped him rather forcibly on the ground. The corpse immediately came to life and seemed to be desirous of getting revenge for his untimely decease for he pursued the others, lashing at them furiously with his sling. As was to be expected, between dances *chicha* was dispensed to the dancers and orchestra by the patron.

The second group was composed of one boy and six little girls from eight to fourteen years old. The boy, who led the dancing, was dressed like a girl and wore a wig of yellow horse hair. His face was covered with a mask, and, wearing a grandee's cape and carrying a tin foil sword, he cut a most dashing figure. The girls were dressed in white. Colored bands, from which hung silver coins, were wound around their foreheads and in these were stuck colored feathers. Around their chins were draped white cloths, so that they were rather effectually masked. Their dance was something of the "Virginia Reel" type and the little girls showed quite a bit of ease and grace in their movements. The third group was dressed in typical Indian costume, with many strings of beads and colored decorations. Their band was similar to that of the first group, but the second group had an "orchestra"; a one-string fiddle taking the place of the flute. Their dance was also rather civilized in character; in fact these two groups of dancers seemed to be very far from the aboriginal and much less "Indian."

Mass was celebrated both Sunday and Monday. All three groups attended, but not many others were present. The feast continued through Tuesday. An *arranco de gallos* was supposed to take place that day, but unfortunately we could not remain in town to see it. This consists, so I was told, of tying several fowls to a high branch and then having riders go full tilt under the tree and attempt to grab them, the successful grabber keeping as a prize the fowl he is able to carry off.

These constitute the leading feasts in which the participants are Indians and *mestizoes*. Each *finca* or *hacienda* has its own feast during the year in honor of the patron saint of the proprietor; these vary in importance according to the religious tendencies of the owner. Religion and superstition are so thoroughly mixed that it

is almost impossible to distinguish the features which may have come down from the feasts of the old Inca times. Drunkenness is invariably a leading part of the festivity, as necessary for its success as the celebration of the mass itself.

It is difficult, then, to get hold of things, apart from religious customs, which might be classed as superstition. The custom of placing crosses on the houses is a religious superstition, and yet it is a practice closely connected with placing skulls of animals there to ward off ill luck. The highland Indians prefer not to sell sheep except early in the morning before they have left the fold, for they believe that selling sheep at any other time is liable to hurt the breed. Many of them when they receive a coin kiss it. The reason for this I could never find out. The mountain Indians are intensely afraid of fresh air. They bundle up around the throat and mouth even when walking barefooted in the snow, and their huts have no openings but a door. Kerosene is the great cure-all, especially for eye troubles. Rheumatism is "cured" and "prevented" by tying a string around the ankles. In Ollantaytambo one day an Indian seeing us carrying a camera fastened to a tripod, thought we were diviners and asked us to please find out where his sweetheart was. As a general rule the Indians, especially the women, did not like to pose for portraits, for they believe that the picture as taken is an X-ray affair, and shows them in a nude condition. Their explanation of our desire to carry away skulls is that on getting them to the United States we can make them talk and thus acquire information about buried treasure.

Most of the Indians are very poor. A few of the more prosperous in the highlands have a few head of stock but that is about all. A sheep is worth only a dollar, a llama, two dollars and a half, burros, two dollars and a half to five, and a horse, such as an Indian might have, is not worth more than ten or fifteen dollars. The Indian whose total wealth would reach fifty dollars is probably an exception. This however is not the case with the *mestizoes* or *cholos*¹ of Urubamba who are often reputed to be worth several thousand

¹ A *mestizo* is one of mixed Spanish and Indian blood. A *cholo* is either a *mestizo* or an Indian Servant, the term being used to designate a social rather than a racial status.



"The second group was composed of one boy and six little girls from eight to fourteen years old. The boy, who led the dancing, was dressed like a girl and wore a wig of yellow horse hair. His face was covered with a mask; and wearing a grandee's cape and carrying a tin-foil sword, he cut a most dashing figure. The girls were dressed in white. Colored bands from which hung silver coins were wound around their foreheads and in these were stuck colored feathers. Around their chins were draped white cloths so that they were rather effectually masked."

dollars. These have the trading instinct very well developed. But the pure-blooded Indian has little or no personal property. The Incan governmental system was not calculated to encourage the growth of a spirit of acquisitiveness and the long period of domination by Spanish conquerors and *hacendados* (landed proprietors) has not tended to the promotion of a feeling of or desire for ownership. The highland native seems to be satisfied with merely keeping alive. He has no ambition to better himself, and an increase in pay means to him merely the necessity for less work.

A number of things may have contributed to this present low condition: cocaine, ignorance, and alcohol. The deleterious effects of the constant chewing of coca leaves has without doubt played a very large part. There has been little effort on the part of the government or church to provide education for the average Indian; one who can so much as write his name being the exception. The most important cause of their decline, however, is probably the great amount of alcohol drunk. With the Indian, drinking always leads to intoxication if he can afford it. The habit of inebriation has such a strong hold on these unfortunate people that the Indian's one ambition has come to be to secure enough liquor to get himself drunk.

In the routine of his daily life, the Indian is rather capable and shows quite an ability to adapt himself to conditions at hand. On our trip over the old Inca trail from Huayllabamba to Machu Picchu,¹ the laborers who accompanied us showed no small amount of skill at making rude shelters quickly of boughs and grass. When we had to replace bridges there was no hesitation as to how it should be done—making rude bridges over country streams had always been part of their daily life. Although the use of a wheelbarrow was beyond them in building operations, in certain things such as whitewashing, plastering, or making *adobes* they showed considerable skill and carefulness.

On the whole, the Indian's life is very dreary. Practically his only pleasures are bestial carousals. The children have no toys, are almost never seen engaged in play. As soon as they are able

¹ See *The National Geographic Magazine*, May, 1916.

to walk they are set to work. In the highlands, sheep are herded by boys and girls scarcely as tall as the animals themselves. As there is always a new baby in the family, there is always nursery work for the "little mothers," and one often sees a child of four staggering under the weight of a "baby-bundle" nearly as large as itself. Only in two instances did I ever see any signs of affection towards infants. At Pucyura while I was talking with an Indian woman who had a baby a year old, her daughter, a girl of perhaps twelve, came home. She immediately grabbed up the baby, kissed it several times, and for a few moments acted as though she really cared for the little tot. In Ollantaytambo the head mason who worked on our house showed a great deal of pride in his male offspring, and used to try to amuse it during the breakfast and supper hour. Even in the towns the children seem to have no games, and are early taught to spend their spare time in such utilitarian pursuits as collecting firewood and forage. Several times in Ollantaytambo I saw a little girl who could not have been over three years old driving home a sheep loaded with small branches which the child had collected for firewood.

As a race they are very taciturn. The struggle for existence is so keen that they have no strength left for the pursuit of pleasure. The highlanders seldom smile or laugh. Their talk is always subdued and almost monotonous in sound. In the valleys life is a little easier and existence not quite so drab. Here one does occasionally see a smile, and the *chola* women of Urubamba are usually laughing and joking as they pass along the trail. They are, however, of mixed blood and their actions are not typical of the pure-blooded Indian.

They are essentially a kindly people and are generous with one another. I had a good chance to observe them during their breakfast and supper hours while they were working at *Yankihuasi*. If one man's wife arrived a little late, the others would start him on something of theirs and this would always be paid back when the first's supply had arrived. The laborers of Ollantaytambo showed a kindly spirit towards those of Huarcondo and in many cases where these, having come without their women, had little to eat



"The third group was dressed in typical Indian costume with many strings of beads and colored paper decorations."

but parched corn and *habas* beans, the local Indians offered them some of their own warm stews.

Both towards each other and towards the white people, they are very polite. But it is hard to tell how much their courtesy towards the upper class is really subserviency and fear. After seeing the bowing and scraping which was performed by some of the Indians before the *Gobernador* of Chincheros, the humble way in which others kissed the hands of the *curas*, the way the women shrunk into the brush at the approach along the trail of a white man, and care used in addressing each one of us personally, I am inclined to believe that in their relations with the upper classes, it is fear rather than courtesy which actuates them to a large extent. And yet, they are almost as courteous with one another. When a newcomer joins the group, he always speaks to each member of it, taking off his hat. If *chicha* is being drunk the newcomer is invited to share, and a place is always made for him in the circle. They embrace each other when leaving, although I never saw any kissing.

In my personal relations with the Indians I always met with the greatest courtesy. Whenever I went into a hut, the owner always saw to it that I had a sheepskin or blanket to sit on, after which he or she usually resumed their occupations. My efforts to talk Quichua with them always met with a good reception and they would try in every way to understand me and make themselves understood. The women, while of course not considered of as much importance as the men, are really treated in a manner better than the example set by the upper classes would lead one to expect. In the case of the pure-blooded Indians it is rare to see the man riding and the woman walking, although it is often so in the case of *mestizoes*.

YALE UNIVERSITY,
NEW HAVEN, CONN.

FAMILY AND SIB

By ROBERT H. LOWIE

ETHNOLOGISTS in the United States are agreed that the North American peoples of crudest culture are loosely organized, with the family as the basic unit; that tribes definitely organized into sibs (Morgan's *gentes*, clans of English writers) represent a higher cultural plane at which, however, the influence of the family is clearly discernible; that accordingly the sib is a later, superimposed product, not the invariable predecessor of the family. It remains to define the mechanism by which such a transformation might have been effected.

The sib, like the family, is a kinship group. It is at once more and less inclusive than the rival unit. On the one hand, it excludes one half of the blood-kindred—the father's side of the family in matronymic, the mother's side in patronymic societies. On the other hand, it admits on equal terms all kindred of the favored side regardless of degree and even individuals considered blood-relatives merely through legal fiction, whence the rule of sib exogamy. The sib normally embraces not merely the descendants through females of an ancestress, or through males of an ancestor, but several distinct lines of descent, which are only theoretically conceived as a single line. This particular form of inclusiveness, based on adoption, coalescence of ceremonial units, or what not, is too familiar a phenomenon to present any great difficulty to our comprehension. The real problem lies in the origin of what Dr. Goldenweiser calls the maternal and the paternal family pattern rather than in the expansion of these unilateral bodies of kindred to form larger groups of the same type and in theory identical with them.

It is my purpose to show that the characteristic features of the sib organization are in some measure prefigured among sibless tribes; that certain usages may bring about an alignment of kin such as occurs in sib systems; that the sib is in fact merely a group of kindred thus segregated and defined by a distinctive name.

In the interests of clearness it is well to define at the outset the relation of my present position to that assumed in previous publications.¹ Elsewhere I argued that the "Dakota" principle of classifying kin is logically and actually associated with sib systems and lacking in sibless tribes. Accordingly I concluded that the sib was the antecedent condition for the development of the Dakota type of relationship nomenclature. At present I should say that while the empirical correlation holds true the causal relations are to be reversed; generally speaking, a particular grouping of kin resulted in a sib system, though a fully established sib organization can and did in turn influence the nomenclature of kin.

In comparing the nomenclatures of sibless and of definitely organized tribes, we often find two characteristic differences. The former either fail to distinguish paternal and maternal relatives or they fail to merge collateral and lineal kin, or both. For example, the Coast Salish have a single term for paternal and maternal uncles, but distinguish children from all nephews and nieces. However, the terminologies of these peoples are by no means uniform and in many of them we can detect foreshadowings of the Dakota principle.

The most obvious of these is the classification not merely of kindred but of unrelated tribesmen as well, nay sometimes even of strangers, according to age. Dr. Karl von den Steinen was called elder brother by the Bakairi, maternal uncle by the Mehinakú.² That is to say, approximate age-mates are classed together except so far as they are differentiated by sex. This principle may be designated as Hawaiian, since it is most consistently followed by the Hawaiians and related Polynesians and Micronesians. Elsewhere, however, we do find suggestions of Hawaiian classification among loosely organized peoples. Perhaps the most common extension occurs in the second ascending generation, any venerable individual being addressed as a grandparent. To cite non-American

¹ Exogamy and the Classificatory Systems of Relationship (*American Anthropologist*, N. S., vol. 17, 1915, pp. 223-239); *Culture and Ethnology* (New York, 1917), chapter v.

² K. von den Steinen, *Unter den Naturvölkern Zentral-Brasiliens*, 2te Aufl. (Berlin, 1897), p. 286.

examples, this is recorded for the Hottentot,¹ and the Chukchi draw no distinction between grandfather and great-uncle, grandmother and great-aunt.² The Chukchi nomenclature reveals other approximations to the Hawaiian pattern. There is no distinction between maternal and paternal uncles or aunts, and even those once removed are designated by the same terms. On the other hand, the Chukchi differ fundamentally from tribes following either the Hawaiian or the Dakota plan in rigidly separating the father from all uncles, the mother from all aunts.

In North America there are interesting analogies. The Wind River Shoshoni, I found, class all cousins with brothers and sisters, conforming to that extent wholly to the Hawaiian scheme; and Sapir notes the same feature for the Nootka. With the Hupa all women of the second ascending generation are grandmothers, all the old men grandfathers, all the children born in the same house one another's siblings.³ The Coast Salish go at least equally far. Here not only are great-uncles and grandfathers classed together and reciprocally call their own and their siblings' grandchildren by a common term, but all cousins are grouped with brothers and sisters, while a single term denotes father's and mother's siblings. One step further and in the first ascending generation, too, they would follow the Hawaiian principle; the step, however, is not taken since uncles and aunts remain differentiated from parents.⁴

Such extensions of terms as have been cited hardly require special psychological explanation since they are not unfamiliar among ourselves. Among primitive tribes there exists the additional stimulus of a widespread and intense aversion to the use of personal names. But the tendency to designate individuals by a common term may have far greater than merely terminological significance. Because primitive peoples attach an extraordinary importance to names the more remote cousin who is *called* cousin or sister may be-

¹ L. Schultze, *Aus Namaland und Kalahari* (Jena, 1907), p. 300.

² Waldemar Bogoras, *The Chukchee, Memoirs, American Museum of Natural History* (Leiden, 1909), p. 538.

³ P. E. Goddard, *Life and Culture of the Hupa, University of California Publications in American Archeology and Ethnology*, vol. 1 (Berkeley), p. 58.

⁴ Franz Boas, *Report Sixtieth Meeting, British Association for the Advancement of Science*, 1890, p. 688 seq.

come more closely related in thought and marriage may be tabooed regardless of degree of propinquity. This we are specifically told in the case of the Paviotso.¹ Among the Nez Percé even third cousins were not allowed to marry² and the union of second cousins roused ridicule in Thompson River communities.³ I conjecture that these are analogous cases.

However the merging of remote and near collateral kin, or even of collateral and lineal lines of descent, does not suffice to pave the way for a sib organization; in addition to inclusiveness there must be dichotomy, that is, the extensions must be unilateral not Hawaiian. Although our knowledge of the social organization of sibless tribes remains sadly inadequate, a number of cases can be presented in which there is definite bifurcation of blood-kindred. For the present a few illustrations must suffice; they are selected from four tribes typical of the great sibless area and representing distinct linguistic stocks.

CHINOOK⁴

mā'ma, -*ma*, *am*, father
-*motx*, father's brother
-*la*, mother's brother

-*naa*, -*a*, mother
-*k!ōlcxa*, mother's sister
-*lak*, father's sister

PAVIOTSO⁵

na, father
hai'i, father's brother
alsi, mother's brother

pia, mother
pīdu'u, mother's sister
pahwa, father's sister

POMO⁶

e, *harik*, father
keh, father's brother
tsels, mother's brother

te, *nik*, mother
tuls, mother's elder sister
sheh, mother's younger sister
weh, father's sister

¹ S. Hopkins, *Life among the Piutes* (Boston, 1883), p. 45.

² H. J. Spinden, The Nez Percé Indians (*Memoirs, American Anthropological Association*, vol. II, part 3, 1908), p. 250.

³ James Teit, The Thompson Indians of British Columbia (*Memoirs, American Museum of Natural History*, vol. I, 1900), p. 325.

⁴ Franz Boas, *American Anthropologist*, N. S., 6, 1904, p. 135.

⁵ A. L. Kroeber, California Kinship Systems, *University of California Publications in American Archaeology and Ethnology*, vol. 12, 1917, p. 359.

⁶ *Ibid.*, p. 370 f.

OKANAGAN¹

lɛɛ'u (m. sp.), father
mistm (w. sp.), father
sm'e'ell, father's brother
sist', mother's brother

sk'o'i (m. sp.), mother
tōm (w. sp.), mother
swāwa'sā, mother's sister
sk'o'koi, father's sister

Such dichotomy of kin as is here indicated is exactly what might be expected under that family organization which American students regard as prior to a sib system, for since the parents belong to different families their relatives are logically enough distinguished from one another.

Let us now assume that the bifurcating and the merging tendency as hitherto expounded unite. Then we shall have a terminology in which all the mother's female kindred belonging to her generation will be classed with the mother's sister, all of her male kindred in that generation are treated as mother's brothers, while corresponding classification is given to the father's relatives. In that generation we shall have an alignment anticipating that of the Dakota type, from which it differs solely in the distinction maintained between parent and parent's sibling of the same sex.

What happens, however, in the speaker's generation? Corresponding to the four uncle-aunt terms we might logically expect an equal number of cousin terms, or even twice as many through sex discrimination. As a matter of fact, the classification of cousins follows quite different principles. In some nomenclatures of sibless tribes, *e. g.*, the Paviotso and Shoshoni, the Hawaiian principle is applied and all cousins are brothers and sisters. Among the Coast Salish we find the same grouping but also a specific term for cousin. I assume—and this is the most hypothetical feature of my scheme—that at the stage preceding the evolution of the sib the natives had specific terms for brother and sister, while all other relatives of that generation were lumped together under a single term except so far as they were differentiated according to sex. This would yield a grouping somewhat similar to that in the first ascending generation since the members of the immediate family would be segregated from more remote kin. On the other hand, this classifica-

¹ Franz Boas, *Report 60th Meeting, British Association for the Advancement of Science*, 1890, p. 691.

tion would differ from that characteristic of most tribes with a sib organization. For one of the essential features of their nomenclatures lies in the dichotomy of cousins according to the likeness or unlikeness of the sex of the parents through whom the relationship is established. In perhaps the most common variety of the Dakota scheme parallel cousins are brothers and sisters, cross-cousins are designated by a distinct cousin term.

It is essential to point out that no perfectly satisfactory explanation of this classification has been given except on Tylor's hypothesis that it originated in a moiety organization.¹ The hypothesis that parallel cousins are simply moiety mates admirably accounts for the grouping but does not cover the facts of distribution, since the division into parallel and cross-cousins is often found with a multiple sib system.² This, however, in turn fails to account for the classification. If there are only two sibs in a tribe (or, prior to sibs, only two intermarrying families), cross-cousins are in one moiety and parallel cousins in the other, as Tylor pointed out. But if there are five, the condition is very different. Assuming maternal descent, the children of sisters will indeed belong to the same social unit but the children of brothers need not; one may marry into group *b*, the other into group *c*, and their children will belong to their respective mothers' sibs.

Now I assume that upon tribes bifurcating but merging relatives unilaterally in the manner described above, there are superimposed two extremely widespread customs, the levirate and the sororate. The terminological effects of these usages have been amply discussed by Sapir,³ though not quite adequately as regards cousin nomenclature. One obvious result is to obliterate the distinction between father and father's brother, mother and mother's sister. In short, the Chinook and other terminologies cited (p. 31) come to conform to the Dakota principle in the first ascending generation. Since father's brother and mother's sister become

¹ E. Tylor, *Journal of the Royal Anthropological Institute*, vol. xviii, 1889, p. 264.

² Cross-cousin marriage, which seems closely connected with a dual organization, also has a distribution far too limited to account for the data.

³ E. Sapir, *Terms of Relationship and the Levirate*, *American Anthropologist*, n. s., vol. 18, 1916, pp. 327-337.

parents, their children become siblings, which accounts for the grouping together of parallel cousins. But it is not clear why father's sister's and mother's brother's child so often remain undistinguished. If, however, all cousins have previously received a common designation on the basis of generation, being differentiated only from those contemporaries who form part of the narrow family circle, as I assume, then the effect of the levirate and sororate is to raise parallel cousins to the status of siblings, while cross-cousins remain in the general class of contemporaries.

I offer this suggestion not as a substitute for Tylor's interpretation but as supplementary to it; it is designed to cover those cases in which parallel cousins cannot be classed together as members of one moiety and cross-cousins of the other for the simple reason that no dual organization exists, either in a fully developed or nascent form.

The relation of these marriage customs to social organization merits some additional consideration. As to their significance I indorse whole-heartedly Tylor's interpretation that the levirate reflects a matrimonial compact not between individuals but between families; and that for lack of actual brothers more remote male relatives are substituted.¹ Corresponding views of course apply to the sororate. Wherever our data are sufficiently explicit, they seem to corroborate Tylor's theory. For example, the Shasta purchase wives and a man is aided in the transaction by his brothers and relatives; accordingly it is natural that they should lay claim to the widow. On the other hand, a widower or the husband of a barren woman might take as his second spouse one of his wife's unmarried sisters or cousins.² Thompson River Indian practice closely conforms to that of the Shasta; more particularly a man held an incontestable claim to his brother's widow.³

In a discussion of Dr. Sapir's paper on the levirate⁴ I raised certain difficulties, some of which would militate no less against the

¹ Tylor, *op. cit.*, p. 253.

² Roland B. Dixon, The Shasta, *Bulletin, American Museum of Natural History*, 1907, vol. xvii, p. 463 f.

³ James Teit, *op. cit.*, p. 325.

⁴ R. H. Lowie, *Culture and Ethnology*, pp. 144-150.

position I now assign to these usages than against Dr. Sapir's explanation of kinship nomenclatures. Probably the most important of these is a chronological one: if the levirate and the sororate developed subsequently to the sibs they could not of course give rise to that classification of kin which I now regard as underlying the sib. Now it is true that since Tylor no one has taken the trouble to ascertain the precise distribution of either custom and his concrete data are apparently lost. But in the light of my reading I am tempted to regard his result—a forty per cent. distribution of the levirate among primitive tribes—as far below the figure that would be established by a count today. This seems certain for North America; and here we find the interesting result that levirate and sororate are found jointly almost throughout the great sibless area—among the Salish of British Columbia, in our Pacific states, and the Great Basin. They are thus characteristic of the simpler sibless cultures, but they also appear commonly on a higher level with the sib system. The inference is warranted that they are traits preceding the sib organization and in a manner preparing the way for it.

This, to be sure, would not apply to the Pueblo area, where neither levirate nor sororate is in vogue. But the best-known tribes of this region differ rather markedly in their nomenclature from the Dakota norm, though in a manner not inconsistent with the principles I have outlined above. The Zuñi group cousins of both sides as siblings, though applying peculiar notions in point of seniority which may here be disregarded.¹ This is quite intelligible, of course, on the principle of generations. With the Hopi the two kinds of cross-cousins are differentiated (see below), so that the problem as to their classification does not arise in the usual form (p. 34). But what of the Zuñi and Hopi classification of uncles and aunts? Here, too, I can see no difficulty. Though the levirate, *e. g.*, supplies an excellent specific reason for identifying father's brother and father while differentiating them from the mother's brother, the joint force of the more general bifurcation and generation factors

¹ A. L. Kroeber, "Zuñi Kin and Clan," *Anthropological Papers, American Museum of Natural History*, vol. 18, part 2, p. 58.

is adequate to produce the same result. Since father's brothers thus came to be reckoned as fathers, and mother's sisters as mothers, the Hopi classification of parallel cousins as siblings follows: the children of those I call my parents must be my brothers and sisters.

The classification of parallel cousins, however, involves a fundamental obstacle to any theory that would derive the sibs from an earlier system of kinship nomenclature. As Morgan himself pointed out, the status of sibling is not coterminous with that of sib fellow. In a matrilineal society only the children of sisters, not of brothers, belong to the same social unit, yet *all* parallel cousins are addressed as brothers and sisters.¹ If we assume that the conditions described above gave rise to the terminology that normally accompanies a sib organization, then why were some of the brothers and sisters taken into the sib and others discarded?

In attempting to answer this question I desire at the outset to emphasize my belief in a multiple origin of the sib idea; even in North America I hold that there have been several centers of distribution. For one thing, I am strongly impressed with the enormous variability of the sib concept. Secondly, the generalized sib idea—unilateral descent—is not, as Morgan would have it, an abstruse quasi-metaphysical notion, but one that quite naturally develops from certain cultural features. These features, moreover, may favor either patrilineal or matrilineal descent; hence I see no reason why either father-sibs (*gentes*) or mother-sibs (*clans*) should not have arisen directly from a loose organization instead of either having to evolve out of the other, though of course I do not reject the possibility of such a transformation.

To turn to the problem of parallel cousins. Sibless communities have often clear-cut regulations tending to establish definite lines of descent. The Shasta and the Thompson River Indians recognized individual ownership of fishing stations with patrilineal descent of the title to them.² Such possessions might not loom large enough in the tribal consciousness to lead to significant consequences, they might even be outweighed by other considerations

¹ Lewis H. Morgan, *Systems of Consanguinity and Affinity* (Washington, 1871), p. 475 f.

² James Teit, *op. cit.*, p. 293 f.; Dixon, *op. cit.*, p. 452.

stressing the maternal lines of descent. It is quite different when economic privileges of some consequence are involved or when there is a definite rule determining the residence of a couple after marriage, or where both these factors coöperate. For example, with the Bushmen, land descended in the paternal line; Dr. Bleek's informant occupied the site held by his father's father, which had descended first to his father, then to his elder brother, and finally to himself.¹ By such an arrangement sisters are separated, brothers and their descendants are united, at least through their property rights. In the permanent villages of the Hupa men were born, lived, and died in the same village, while women followed their husbands.² The paternal line of village mates was thus inevitably stressed while the offspring of sisters were scattered over different localities.

In recent years no one has emphasized the significance of such conditions for social organization more vigorously than Professor Speck. In the northeastern Algonkian region he finds non-exogamous groups transmitting hunting territories quite definitely from father to son and following patrilocal residence rules; brothers to some extent share economic privileges.³ Given such customs, it will not matter whether through the levirate and sororate all parallel cousins are addressed as brothers and sisters. Those parallel cousins who live together and share the same hunting prerogatives, *i. e.*, the children of brothers, will be automatically set apart from the children of sisters and come to be considered as in some respects more closely related. I regard Dr. Speck's data as most important in demonstrating what is to all intents and purposes a nascent father-sib. The external details of the processes involved may of course vary. For example, in the region of the northwest Amazons, the social unit is the exogamous house community of as many as two hundred individuals. Residence is patrilocal so that brothers take their wives to the same house. This sets up the same differ-

¹ W. H. I. Bleek and L. C. Lloyd, *Specimens of Bushman Folklore* (London, 1911), pp. 305-307.

² P. E. Goddard, *op. cit.*, p. 58.

³ Frank G. Speck, Kinship Terms and the Family Band among the Northeastern Algonkians, *American Anthropologist*, N. S., vol. 20, 1918, p. 143 *seq.*; *id.*, Family Hunting Territories, *Memoir 70, 1915, Canadian Geological Survey*.

ence as among the Algonkian between the two kinds of parallel cousins, and here we have the interesting phenomenon that marriage with parallel cousins from other households, *i. e.*, unions between the children of sisters, are permitted.¹

In considering matrilineal societies Tylor was inclined to derive their essential features from the basic fact of matrilocal residence.² This is a luminous suggestion, for from matrilocal residence the segregation of matrilineal kin logically follows, as does the exceptional status of the maternal uncle. Nevertheless a serious obstacle to this interpretation as a general theory of the origin of mother-sibs lies in the restricted distribution of matrilocal residence even where descent is matrilineal. The Australians are practically all patrilocal, the Melanesians predominantly so, and some matronymic tribes in both Africa and America likewise have the wife living with her husband. There is the additional difficulty that residence very often is only temporarily with the wife's parents, in which case it suggests not infrequently merely an obligation on the husband's part to serve for his wife in lieu or part payment of the bride-price. Evidently if a young couple only stay with the wife's parents for a year or two and then set up an independent household, the conditions for a matrilineal reckoning of kindred are not the same as among the Hopi or Zuñi, where women own the houses and their husbands permanently reside with them. This fundamental difference between permanently and temporarily matrilocal residence still further restricts the applicability of Tylor's theory. Nevertheless it may be accepted as admirably fitting the case of the Pueblo Indians, for as Professor Kroeber has shown the sum and substance of the Pueblo "matriarchate" lies in the female ownership of the houses.³

In attempting to supplement Tylor's explanation it seems to me that attention should be specially directed to economic conditions and the sexual differentiation of labor. Eduard Hahn has familiarized us with the distinct character of horticulture and ara-

¹ T. Whiffen, *The North-West Amazons*, pp. 63, 66 ff.

² E. Tylor, *op. cit.*, p. 258; *The Matriarchal Family System*, *Nineteenth Century*, vol. XL (1896), pp. 81-96.

³ A. L. Kroeber, *Zuñi Kin and Clan*, pp. 47 f., 89 f.

tory culture—the former being in the hands of the women, the latter belonging uniformly to the masculine domain. Does not this suggest an interpretation of the kind required? Unfortunately we often lack details as to the manner of tillage, but recent data on the Hidatsa seem extremely suggestive. Here gardens were tilled jointly by the women of the maternal family and descended in the maternal family.¹ That is to say, the female descendants of sisters were actually united by common property rights and association in economic activities. The fact that male descendants are not included in these labors does not seem to me fatal, for as soon as the joint tillers were differentiated by a name their infants would automatically share the same designation from birth. It is interesting to note that in this region there is no record of individual hunting prerogatives of the males to counterbalance these horticultural privileges of the women.

I realize that my hypothesis, even when joined to Tylor's, does not account for all the cases of matrilineal sibs in the world. The patrilocal and non-horticultural Australians and Northwest Coast Indians remain to be explained. Nevertheless matrilocal residence and the joint economic activities of women suffice to account for a majority of the known cases, and the residual phenomena might at least be approached from a similar point of view.

I assume, then, that bifurcation and age-stratification, which occur among many sibless tribes, are conditions antecedent to the sib organization but produce an alignment of kin approximating that of the Dakota-Iroquois nomenclatures. The levirate and sororate, while not indispensable, render it more probable that the first ascending generation should be designated after the normal sib fashion; and they may further bring about the usual grouping of cousins. But in order that sibs shall develop from such a terminology, it is inevitable that the children of brothers be differentiated from those of sisters. I follow Tylor in explaining part of the phenomena by patrilocal or matrilocal residence. Others seem intelligible from the sociological differentiation of the sexes and the consequent establishment of unilateral lines of descent.

¹ Gilbert L. Wilson, *Agriculture of the Hidatsa Indians* (Minneapolis, 1917), pp. 9 f., 113 f.

When the sib has taken firm root, it is quite possible for it to react upon the kinship terminology. Not only may the kinship idea be extended to similarly named sibs of alien peoples, but the sib affiliation may even override the basic generation scheme, as among the Crow and Omaha. In these instances, too, it is desirable to view the facts in connection with associated cultural features. Even in such cases the terminology may sometimes result from concrete social arrangements involved in the sib organization rather than from the abstract concept of the sib. For example, the Hopi classification of the father's sister with all her female descendants through females simply groups under one head a series of house mates, which manifestly does not apply to the Crow or Hidatsa.

The present is not an historical paper but a sketch intended to stimulate historical studies. If the sib is later than the family, we cannot indefinitely postpone an inquiry into the conditions that have moulded the sib out of a prior family organization. This involves the demand that we must learn a great deal more about the social life of the loosely organized peoples. The social customs of these tribes are no more uniform than are the sib organizations of other tribes. Both must be studied intensively and with constant consideration of the concomitant cultural traits if we are ever to frame a satisfactory theory of the development of social organization.

AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK CITY.

REPORT ON THE ACADEMIC TEACHING OF ANTHROPOLOGY

By FRANZ BOAS

IN May, 1916, a number of anthropologists met at Columbia University in the City of New York to discuss the objects and methods of anthropology teaching in colleges and universities. The following were invited:

Franz Boas	Albert E. Jenks
Roland B. Dixon	A. L. Kroeber
Pliny Earle Goddard	Robert H. Lowie
A. A. Goldenweiser	George Grant MacCurdy
George B. Gordon	Bruno Oettking
F. W. Hodge	Marshall H. Saville
W. H. Holmes	Frank G. Speck
E. A. Hooton	A. M. Tozzer
Walter Hough	Clark Wissler
Aleš Hrdlička	

At the end of the conference the participants undertook to write out their opinions in regard to special topics. These reports were circulated among the members of the conference and among a few other anthropologists who had been unable to be present. In December, 1916, during the meeting of the American Association for the Advancement of Science in New York, the conference met again at the American Museum of Natural History, and the discussion was continued on the basis of the previous conference and of the reports that had been circulated. At the annual meeting of the Association held at Philadelphia in 1917, a committee on Teaching of Anthropology in the United States was made permanent and directed to make reports to the Council annually. The committee consisted of Franz Boas (chairman), R. B. Dixon, P. E. Goddard, E. A. Hooton, A. L. Kroeber, George Grant MacCurdy, F. G. Speck, A. M. Tozzer.

This committee was continued by action of the Council at the Baltimore meeting, December 28, 1918.

As a result of the conferences, the following report has been drawn up:

I. THE SCIENCE OF ANTHROPOLOGY

The scientific aim of anthropology is the reconstruction of the history of mankind as a whole. This aim is pursued along biological, geological, archaeological, linguistic, and general cultural lines; and according to historical methods in the narrower sense of the term.

The methods of anthropology are founded on an objective consideration of the life and activities of civilized and of primitive man, both being discussed from the same fundamental point of view, without regard to the fact that the life of civilized man is nearer to us than that of primitive man.

If this is borne in mind, the value to the college of anthropology becomes at once apparent, because it trains the mind to clear thinking in relation to the forms of our cultural life—one of the great needs of those who ought to become leaders in our public activities. It broadens the outlook upon the phenomena of civilization, and increases the power of objective interpretation of our own cultural attitudes.

Its value, as a subject of university teaching, to advanced students of any of the humanities—of philosophy, history, psychology, law, religion, literature, and art—is also apparent, because they find in it a fundamental viewpoint that is helpful in the interpretation of their special studies.

An objective attitude is fostered by the conception of our civilization as of one of the many forms of human social life; and this is brought home forcibly by a presentation of the general data of anthropology.

The history of modern science shows an increasing appreciation of this method of approach, although most of the attempts to utilize it for the solution of problems in other sciences appear inadequate to the trained anthropologist. Anthropology has a distinct task to

perform in the broadening-out of many of the older sciences through its wider outlook upon human history and upon the range of forces that determine its course. It gives a concise answer to the problems of the relation between biological conditions and civilization, between environment and cultural development, between historical happenings of the remote past and modern achievement. It is, therefore, indispensable for those who deal with the practical problems of modern society, both in its biological and cultural aspects. Nevertheless, the importance of anthropological training for the social worker, the physician in charge of public health, the teacher, the census administrator, the colonial officer, and the legislator is not yet sufficiently clearly understood.

II. THE AIM OF NON-PROFESSIONAL ANTHROPOLOGICAL INSTRUCTION

I. This view of anthropology determines the scope of introductory work. The college course must be a summary of the biological, environmental, psychological, and social forces that find expression in the life of man, and of their interrelation; and in it must be reviewed the history of mankind as a whole.

On account of the stress that in other departments is laid upon European history, the review will treat with particular emphasis the rest of the world, and will endeavor to place the biological and cultural history of the European peoples in its proper place as part of a general history of mankind.

According to the character of instructor, student-body, and institution, useful courses of this type are being given in various forms. Stress is either laid upon the general forces that determine the course of human history, particularly upon the relation between biological and social development, and upon their distinguishing features, upon the psychological, environmental, or economic conditions under which certain types of development occur; or the data relating to the cultural forms that have developed in various parts of the world and their historical and psychological significance are treated in greater detail. The choice between these methods is often determined by the availability of material for instruction,

and by the extent to which control of the student's work is necessary. When the relation of the anthropological viewpoint to modern activities is emphasized, the initiative for intense study rests much more with the student than in those cases in which familiarity with foreign cultural types is aimed at.

In an introductory course as here outlined, very little attention can and should be given to details of methods of research. Only the most general principles of procedure can be outlined. There is no room for detailed discussion of the manner of solving problems of surface geology, or morphology, physiology and psychology, of linguistics, or of the investigation of cultural phenomena. Nevertheless it will be indispensable to describe the principles upon which the procedure rests.

2. As stated before, the non-professional teaching of anthropology is of service not only to the college student who does not look forward to a professional career, but it is also of great value to students of sciences that deal with the mental life of man. Furthermore, the biological side of anthropology has close associations with problems of social life, such as hygiene and education. The student devoted to any one of these sciences who wishes to profit from anthropological instruction has already command of a wider field of knowledge, and approaches the subject in a maturer spirit, than the college student who lacks this background. The scope of an introductory college course will not suffice for the purposes of the more advanced student.

Generally the student who does not specialize in any particular science, and who attends college in preparation for a non-professional calling, will, according to our present educational system, require a considerable amount of direction and control in regard to the accumulation of the data that form the basis of an anthropological viewpoint; while the student who devotes himself to any particular science will obtain the best results by extending his readings and studies in anthropological fields related to his own field of work, and may be relied upon to seek for the data that will be helpful to him.

3. Owing to these conditions, a differentiation between intro-

ductory work for undergraduate and for graduate students will be desirable. It will be necessary wherever both classes are represented by large numbers.

The essential difference between the two courses will ordinarily lie in the restriction in the undergraduate course to the most salient points, which should be selected according to two principles, the analysis of local cultural complexes, and the comparative study of the distribution of single traits over all parts of the world. The course for advanced students will be more systematic; it will give fuller information in regard to sources, and be more critical in character.

In how far information regarding cultural types and methods of inquiry can be demonstrated, depends upon the museum, library, and laboratory facilities that are at the disposal of the teacher.

4. The lines of approach to the study of the phenomena of human life that set off anthropology from other sciences make it highly desirable that its point of view be brought home to undergraduate students by advanced work, in the same manner as is done in other sciences. As in language and in science the introductory courses are followed by some special courses treating the more special fields of knowledge, and giving at the same time an appreciation of the spirit and method of scientific approach of their subject-matter and of its relation to other sciences, so this specialization should be followed out in anthropology. At present this elaboration of an introductory course is carried out in a few institutions only, partly by means of courses treating in some detail the anthropology of various cultural areas, and taking into consideration all the aspects of anthropological research for that area; partly by means of topical courses that treat general biological questions and general problems of the development of civilization, without particular regard to local areas. On account of the wide range of the subject-matter of anthropology, no recommendations can be made in regard to selection of special topics. The selection must be left to the individuality of the instructor and to the availability of material.

On account of the close association of anthropology with other sciences, its intimate relation to social questions, and its broaden-

ing influence upon thought, an introductory course and advanced courses in anthropology should be included in the programme of studies of every college.

III. PROFESSIONAL STUDY OF ANTHROPOLOGY

As happens in other sciences, the needs of two distinct classes of investigators have to be met. There are geologists, biologists, psychologists, historians, philosophers, who happen to deal with anthropological problems, and there are anthropologists whose chief problems are those of anthropology, no matter whether these are approached from a biological, geological, linguistic, or an historical point of view. The professional teaching of anthropology is devoted to the training of the second group of investigators.

Here, perhaps more than in any other science, it is difficult to correlate properly the various branches of anthropological research. It is fairly clear that the fundamental differences between biological, linguistic, and historical methods make it quite impossible that we should expect equal proficiency in all of these on the part of a single investigator; nevertheless he must use all of them in the solution of his problems. That part of the history of a people that is reflected by the bodily form is not the same as the one that is expressed in language; and both are again different from those parts of its history that are reflected in various cultural aspects. Nevertheless we need all these means to solve our historical problems, and, furthermore, we must determine in how far, if at all, the biological, linguistic, and cultural phenomena are interrelated. It is therefore clear that a minimum amount of knowledge must be demanded of every professional student of anthropology, so that he may be able to estimate the values of all these methods, though he may have to rely upon other investigators to make actual contributions in those parts of the science with which he is less familiar. The anthropologist must therefore obtain a training in all these methods.

It is another question whether training in all these branches should be given in an anthropological department. The particular kind of geology needed by the anthropologist is surface geology, and is adequately supplied by geological and geographical departments.

The kind of biology that is needed by the student is partly general morphological knowledge, partly geographical and palaeontological information relating to man and to the plants and animals associated with man. The fundamental features of these will ordinarily be better given in a biological department than in an anthropological department. The general basis of linguistic study is so intimately associated with general philology, that the information for the student who wants to specialize in this branch is better given in a philological department. The same is true in regard to the philosophical and psychological basis of certain aspects of cultural activities in which the special work of the philosopher, psychologist, and historian will be indispensable. Wherever it is possible to obtain the necessary foundation in the departments mentioned, more thorough work may be expected than if the anthropological department is expected to furnish the fundamental information required for original work in these lines of study. The work of the instructor who is to train anthropological students should be based on the information obtained in the departments mentioned.

It does not seem necessary in the present report to enter in detail into the scope of courses intended for the preparation of anthropologists, because this would be equivalent to a discussion of the general scope of the science as manifested in modern literature. On account of the variety of subject-matter, the special type of instruction that is being given will always depend upon the group of instructors and their primary interests.

It may be pointed out, however, that, on account of the great variety of methods, which brings it about that a single teacher cannot cover the whole field evenly, a certain degree of specialization would be of advantage. This has been partly accomplished. Harvard University, for instance, has come to be the center for archaeological studies, while in Columbia University and in the University of California greater emphasis is placed upon the study of ethnology. It must be pointed out, however, that facilities for research in physical anthropology are only slightly developed in our universities. The adequate most provision for this branch of inquiry is found in Harvard University and also in the United

States National Museum, which, however, is not a teaching institution. Both on account of its theoretical interest and of its importance for problems relating to the welfare of mankind, this subject should receive attention in our universities. This would immeasurably increase the usefulness of the work of those who are charged with the maintenance of public health and well-being.

IV. REQUIREMENTS OF A DEPARTMENT OF ANTHROPOLOGY

1. An introductory college course and an introductory advanced course should cover the field of biological, linguistic, and cultural anthropology. For a successful conduct of a course a small teaching collection of anatomical material, of ethnological illustrations, and, if possible, of specimens should be available. Wherever possible the work should be based on the study of museum material.

2. For advanced teaching of biological anthropology a well equipped laboratory for morphological and biometric work is needed.

3. For advanced teaching in cultural anthropology close coöperation with a museum is highly desirable. For certain branches it is indispensable. To a limited extent the use of specimens may be replaced by the use of illustrations.

4. For preparing students to carry on independent investigations opportunity for research work in social groups of varying types is needed. Opportunity should be given for observation on children, among various social groups of our own communities, and in primitive society.

COLUMBIA UNIVERSITY,
NEW YORK CITY

THE ACADEMIC TEACHING OF ANTHROPOLOGY IN CONNECTION WITH OTHER DEPARTMENTS

By GEORGE GRANT MACCURDY

IN response to a request from Professor Franz Boas to report on courses in anthropology given at American institutions in connection with other departments, I sent to 196 institutions in the United States the following circular letter:

October 5, 1916

Dear Sir: At the New York meeting of the American Anthropological Association the subject of the "Aims and Organization of Academic Instruction in Anthropology" will be discussed. By way of preparing for this I have agreed to report not later than November 1 [afterward extended to December 20], on "Courses in Anthropology given at American Institutions in Connection with other Departments," *i. e.*, at institutions where "Anthropology" does not appear as part of a Departmental name.

Will you therefore kindly send me information relative to your institution as follows:

1. The names of courses in Physical Anthropology, Ethnology, Indian Languages, and Prehistoric Archaeology, with the names of Professors offering said courses.
2. The name of the Department or Departments, in connection with which these courses are offered.
3. When the courses were first offered.
4. Approximate number of students taking such courses during the year 1915-16.

Hoping for a prompt reply and thanking you for your kindness, I am,

Very sincerely yours,

(signed) GEORGE GRANT MACCURDY

The list of institutions did not include Harvard, Yale, Columbia, the universities of Pennsylvania, Chicago, and California, and Phillips Academy, Andover, Massachusetts, in each of which there is a special Department of Anthropology; neither did it include institutions in which the faculty consisted of fewer than thirty members. Of the 196 institutions in question, 39 have given affirmative answers, 127 negative, and 30 no answer at all. Below

will be found a digest of the answers from institutions where courses in anthropology are offered in connection with other departments.

AMHERST COLLEGE, AMHERST, MASSACHUSETTS

For the past fifteen years, Professor John M. Tyler has offered a course in *Prehistoric Archaeology*, including only so much *Physical Anthropology* as bears directly on the archaeology. It occupies one semester, three hours a week, and is given in connection with the Department of Biology.

Some *Archaeology* is also taught as accessory to courses in the departments of Sociology, Government, and Political Institutions.

BARNARD COLLEGE, COLUMBIA UNIVERSITY, NEW YORK

Two half-year courses in anthropology are given at Barnard. The general introductory course was first offered in 1898-99. In 1915-16, thirty Barnard students were registered for the two courses in anthropology, while two students were taking more advanced courses at Columbia.

BELOIT COLLEGE, BELOIT, WISCONSIN

Professor George L. Collie offers a course in *Prehistoric Archaeology*, in connection with the Department of Geology. The course was first offered in 1902, and in 1915-16 was taken by 21 students.

BOWDOIN COLLEGE, BRUNSWICK, MAINE

In the Department of Economics and Sociology, at the beginning of the term, Mr. Lee D. McClean devotes about three weeks to *Anthropology* as a background for his course in sociology. This year 65 men are taking the course.

COLLEGE OF THE CITY OF NEW YORK, NEW YORK

Commencing February, 1917, a course in *Anthropology* will be offered in connection with the Department of Geology. Since 1914, Professor Howard B. Woolston has given courses in ethnology during the spring terms, under the Division of Sociology in the Department of Political Science.

CORNELL COLLEGE, MOUNT VERNON, IOWA

In the Department of Geology a part of the course in Historic Geology is described as "Human palaeontology or prehistoric archaeology." Another course in geology deals largely with "The influences of geographic environment on the life and history of peoples." In the Department of Archaeology, which is mainly classical, some attention is given to prehistoric and preclassical art and archaeology.

CORNELL UNIVERSITY ITHACA, NEW YORK

Professor Geo. L. Burr of the Department of Mediaeval History gives annually a few lectures on anthropology and ethnology. Nathaniel Schmidt, Professor of Semitic Languages and Literatures, opens his course on the *History of Civilization* with lectures on prehistoric archaeology.

DAKOTA WESLEYAN UNIVERSITY, MITCHELL, SOUTH DAKOTA

General Anthropology in connection with the Department of Biology. A three-hour course, first offered in 1916-17, with three students.

DARTMOUTH COLLEGE, HANOVER, NEW HAMPSHIRE

In connection with the Department of Sociology, Professor Charles H. Hawes gives a course entitled *Ethnology and Archaeology of America*, three hours a week during the second semester. This course is open only to those who have taken Professor Hawes' Introduction to Sociology, which also serves as an introduction to anthropology. These courses are largely attended.

GEORGE WASHINGTON UNIVERSITY, WASHINGTON, DISTRICT OF COLUMBIA

Dr. Truman Michelson, of the Bureau of American Ethnology, was appointed Professor of Ethnology in 1917. For the year 1918-19, he offers the following courses:
General Ethnology, three hours a week.
Outlines of North-American Ethnology, two hours a week.

American Indian Languages, Introductory course, two hours a week.
American Indian Languages, Advanced course, one hour a week.
Seminar in Ethnology.

At present Professor Michelson has seven students.

GRINNELL COLLEGE, GRINNELL, IOWA

Since 1911-12 Professor Edward B. T. Spencer has been offering a course in *Anthropology* (Archaeology *d*) in connection with the Department of Art and Archaeology. Usually about six students.

HUNTER COLLEGE OF THE CITY OF NEW YORK, PARK AVENUE AND SIXTY-EIGHTH STREET

Professor Edward S. Burgess, head of the Department of Natural Science, offers five courses in Anthropology:

Anthropology 4, *Primitive Man* (especially the North American Indians).

Anthropology 5, *Primitive and Modern Races* (especially of the Old World).

Anthropology 6, *Primitive and Prehistoric Races* (especially Paleolithic).

Anthropology 7, *Primitive Thought* (especially Folklore and the Beginnings of Civilization).

Anthropology 8, *Primitive Archaeology*.

Each of these is for one half year and usually requires its preceding number as a prerequisite. These are a part of the work of the Department of Natural Science, and together with courses in botany and zoölogy they form the Natural Science Major.

Courses 4 and 5 were first offered in 1903, the rest were added in 1906. About 180 students were enrolled in these courses for 1916-17.

MARQUETTE UNIVERSITY, MILWAUKEE, WISCONSIN

Professor George Deglman, of the Department of Psychology and Ethics, has offered courses in anthropology since 1907. Last year twenty students took these courses.

NEW YORK UNIVERSITY, WASHINGTON SQUARE EAST, NEW YORK CITY

Since 1908-09, Professor Rudolph M. Binder has offered on alternate years (to seniors and graduate students) a general and elementary course in *Anthropology and Ethnology* in connection with the Department of Sociology. The number of students has varied from 23 to 75.

OHIO STATE UNIVERSITY, COLUMBUS

Professor V. W. Bruder, of the Department of Economics and Sociology, offered for the first time in 1915-16 a course in *Anthropology*, three credit hours, first semester; and a course in *Ethnology*, three credit hours second semester (prerequisite, Anthropology). Number of students in anthropology 18, in ethnology 15.

For several years, Mr. William C. Mills has given a course entitled: "Primitive Man in Ohio," one credit hour, second semester.

ORIENTAL UNIVERSITY, WASHINGTON, DISTRICT OF COLUMBIA

Since 1903, courses have been offered in *Ethnology and Archaeology* in connection with the Classical College and Orientalistic Seminary. Ten students took the courses in 1915-16.

PRINCETON UNIVERSITY, PRINCETON, NEW JERSEY

"Earth and Man," or a study of the physical environment of man. This course was first offered by Professor Guyot, and since 1880 by Professor William Libbey. In recent years the number of students has varied from 150 to 200.

RADCLIFFE COLLEGE, CAMBRIDGE, MASSACHUSETTS

Radcliffe College depends upon the Division of Anthropology of Harvard University for its teaching staff in anthropology. Courses have been offered since 1894. Those for 1916-17 include:

1. *General Anthropology*, 3 hours; Asst. Professor Tozzer and Dr. Hooton.
2. *Primitive Sociology, a History of Institutions*, half course; Asst. Professor Tozzer and Dr. Hooton.

3. *American Archaeology and Ethnology*, research course primarily for graduates; Asst. Professor Dixon. (In a similar manner Teachers' College in New York City offers courses in anthropology through the Faculty of Columbia University.)

RANDOLPH-MACON WOMAN'S COLLEGE, LYNCHBURG, VIRGINIA

Since 1911, Professor Fernando W. Martin has given a one-hour course, *Introduction to Anthropology*, in connection with the Department of Geology, as an elective for juniors and seniors. The number of students electing the course has averaged about 30. According to Professor Martin the purpose of the course is two-fold; to widen the horizon; and "to acquaint those who might pass on to a university with the fact that such a field of study as anthropology exists."

SMITH COLLEGE, NORTHAMPTON, MASSACHUSETTS

Since 1905-06 Professor Harris H. Wilder, head of the Department of Zoölogy, has offered a course in *General Anthropology*. In 1915-16 it was taken by 35 students. Professor Wilder offers a graduate course in *Physical Anthropology*. This is a three-hour course and was given for the first time in 1912-13.

STATE UNIVERSITY OF IOWA, IOWA CITY

Anthropology, one semester, and *Ethnology*, one semester, are offered by Professor Lorin Stuckey in the Department of Economics, Sociology, and Commerce. Emphasis is placed upon matters of local interest, chiefly in connection with the mounds and the American Indians. In 1915-16 there were approximately 15 students taking these courses, which have been given for the past three years. Prior to this time, for a period of five years, courses with practically the same title were given by Professor Stuckey's predecessor, but with the emphasis more upon the social side.

THE TEMPLE UNIVERSITY, PHILADELPHIA, PENNSYLVANIA

Beginning with 1916-17, a course in *General Anthropology* is being offered in connection with College of Liberal Arts and Sciences.

UNIVERSITY OF ARIZONA, TUCSON

A course in *Ethnology and Prehistoric Archaeology* is offered by Professor Byron Cummings of the Department of History and Archaeology. In 1915-16, its first year, 40 students were enrolled.

UNIVERSITY OF COLORADO, BOULDER

Since 1912, Professor Frank E. Thompson, head of the Department of Education, has offered one course in *General Anthropology* and one in *Ethnology*. Number of students in 1915-16, twenty-six.

UNIVERSITY OF DENVER, DENVER, COLORADO

In connection with the Department of History and Sociology the following courses in anthropology are given by Professor Arthur J. Fynn:

1. *Primitive Man*, 3 hours, 1st semester.
2. *Primitive Arts*, 3 hours, 2d semester.
3. *Primitive Science*, 3 hours, 2d semester.
4. *American Aborigines*, 2 hours, 1st semester.
5. *Primitive Religions*, 3 hours, 2d semester.
6. *Primitive Conditions Compared*, 3 hours, 2d semester.

UNIVERSITY OF KANSAS, LAWRENCE

Since 1896, Professor Frank W. Blackmar, head of the Department of Sociology, has offered a course in *General Anthropology* and one in *Ethnology*, both open to juniors, seniors, and graduate students. There were 71 students taking these courses in 1915-16. There is also opportunity for graduate work in *American Ethnology*.

UNIVERSITY OF MINNESOTA, MINNEAPOLIS

Anthropology is linked with Sociology under the departmental name: Sociology and Anthropology. Albert E. Jenks is Professor of Anthropology. He is also Director of the Americanization Training Course offered for the first time in 1918-19.

UNIVERSITY OF MISSISSIPPI, UNIVERSITY

During the spring term, Dr. C. S. Brown, head of the Department of Modern Languages, gives a course in *American Archaeology*. In 1916 ten students were enrolled.

UNIVERSITY OF MISSOURI, COLUMBIA

Since 1901, Professor Charles A. Ellwood has offered a course running through the year, three hours a week. The first half is devoted to *General Anthropology* and the second half to *Cultural Anthropology*. The course is limited to juniors, seniors, and graduates, Elementary Sociology being a prerequisite. This year (1915-16) 22 students are enrolled. Professor Ellwood adds: "I should be glad to see a professor in anthropology appointed, as I have more work than I can do in sociology."

UNIVERSITY OF NEBRASKA, LINCOLN

Three courses amounting to 9 hours weekly during the year have been given since 1907 by Professor Hutton Webster, of the Department of Political Science and Sociology:

1. *Social Origins*, or *Ethnology*.
2. *Primitive Religion*.
3. *Folk-lore*.

Eighty-five students took these courses in 1915-16.

UNIVERSITY OF NORTH DAKOTA, GRAND FORKS

Prior to 1907 a course in *Ethnology* was started. Since then it has been given by Professor John M. Gillette, of the Department of Sociology. Last year this course was made advanced work, which caused a reduction in the number of students to three. Formerly it was taken by twenty to thirty students.

UNIVERSITY OF OKLAHOMA, NORMAN

Two courses given in alternate years, two hours a week, by Jerome Dowd, Professor of Sociology. The one in *Ethnology* was first scheduled in 1906-07, and last year enrolled 15 students. The other in *Anthropology* was first scheduled in 1908-09, and 23 students were enrolled in the last class (1914-15). The University is also doing some excavating and research work among the caves and dwellings of the prehistoric people in Oklahoma; this work is in charge of Mr. Joseph B. Thoburn.

UNIVERSITY OF SOUTHERN MINNESOTA, AUSTIN

Since 1913-14 two courses, one in *Physical Anthropology* and one in *Ethnology*, have been offered. These courses are listed under the Department of Sociology, and are elected annually by about twelve students.

UNIVERSITY OF TEXAS, AUSTIN

Instruction in anthropology comes under the School of Institutional History (College of Arts). The Chairman of this School in 1918-1919 is James Edwin Pearce, Associate Professor of Anthropology. Courses are offered by Professor Pearce as follows:

General Anthropology, 1 year's work, 1 credit.

Anthropo-Geography, 1 year's work, 1 credit.

Ethnography, 1 year's work, 1 credit.

Exploitative Institutions and Practices. Fall term, War and Conquest; Winter term, Slavery; Spring term, Sex and Sex Exploitation.

Seminary. Current Anthropological Literature and Applied Anthropology.

UNIVERSITY OF UTAH, SALT LAKE CITY

Professor Levi Edgar Young offers two courses in *American Archaeology* in connection with the Department of Archaeology (classical). This Department was organized in 1915 and fifty students were registered the next year for both courses in American Archaeology. The Department is supported by the state to the extent of \$2,000 annually for research in Utah.

UNIVERSITY OF VERMONT, BURLINGTON

A general course in *Anthropology* has been given every year since 1887, by G. H. Perkins, Professor of Geology and Dean of the College of Arts and Sciences. The average number in the class is about 65.

UNIVERSITY OF WASHINGTON, SEATTLE

Courses in anthropology are listed under the Department of Sociology. Nearly all of these are given by T. T. Waterman, appointed Associate Professor of Anthropology in 1918:

Evolution of Material Culture, First quarter.

Social Evolution, Second quarter.

Fossil Man, Third quarter.

Americanization, Second quarter.

Climate and Civilization, First quarter (J. Franklin Thomas).

The Family, Second quarter.

Seminar, for seniors and graduates, First, Second, and Third quarters.

Research Course, 1918-1919 Phonetics with special reference to the Salish languages.

VASSAR COLLEGE, POUGHKEEPSIE, NEW YORK

In the Department of History, Assistant Professor Ida C. Thallon gives a course on *Prehistoric Europe*. It was first offered in 1910; in 1915-16 there were six students.

Professor Margaret F. Washburn's course entitled *Social Psychology*, first given in 1907, is largely anthropological since it touches on primitive religion, art, language, and race psychology. It was taken last year by 120 students.

WESTERN RESERVE UNIVERSITY, CLEVELAND, OHIO

Professor Mattoon M. Curtis, Department of Philosophy, offers a course in *Anthropology*; and Dr. Charles W. Coulter, Department of Sociology, offers a course in *Social Evolution*. These were first scheduled in 1910-11; and in 1915-16 a total of 56 students were enrolled in the two courses.

In 1901 the writer made a similar investigation¹ without, however, limiting his list to institutions with faculties numbering at least 30 members; and found that anthropology in some of its aspects was being taught in 31 institutions. But these included the eight exceptions noted above. Furthermore, four institutions (Bellevue College, Bellevue, Nebraska; College of Physicians and Surgeons, Boston; National University, Washington, D. C.; and Niagara University, Niagara County, N. Y.), that reported the teaching of anthropology in 1901, were not on the writer's list of

¹ *Science*, N. S., XV, 211-216, Feb. 7, 1902.

1916; and hence have had no opportunity to reply. One institution, Willamette University, Salem, Oregon, that answered affirmatively in 1901, failed to respond in 1916.

The only institutions on the two lists that were teaching anthropology in 1901, but are not doing so now are: Boston University, Boston, Massachusetts; Brown University, Providence, R. I.; Creighton University, Omaha, Nebraska; Georgetown University, Washington, D. C.; the universities of Illinois, Indiana, and Wisconsin. In this class belongs also Clark University, which has not appointed a successor to the late Professor A. F. Chamberlain.

Of the 30 institutions which have failed to respond even to the second request for information, it is to be presumed that none are giving courses in anthropology. On the other hand, it is probable that some of the institutions, which are not on the 1916 list because of their small faculties, are giving instruction in some branch of anthropology. At all events there are now at least sixteen more institutions giving some instruction in the subject than there were in 1901; and the number and importance of the courses offered have likewise increased.

Among the institutions which have responded in the negative, but whose responses show more than a passing interest in the subject, are: Alfred University, Alfred, N. Y.; Colby College, Waterville, Maine; Coe College, Cedar Rapids, Iowa; Delaware College, Newark, Delaware; Denison University, Granville, Ohio; Indiana University, Bloomington; Leland Stanford Junior University, Stanford University, California; Rutgers College, New Brunswick, New Jersey; St. Louis University, St. Louis, Missouri; Syracuse University, Syracuse, N. Y.; Tufts College, Massachusetts; University of Louisville, Louisville, Kentucky; University of Notre Dame, Notre Dame, Indiana; University of Wisconsin, Madison; Wesleyan University, Middletown, Connecticut; and Whitman College, Walla Walla, Washington.

Two striking facts revealed by the present inquiry are: the lack of interest in the subject still shown by a few leading universities such as Johns Hopkins for example; and the addition of anthropological courses to the curricula of some of the lesser colleges, but

more especially to those of the state universities, where the signs of growth in interest are both steady and unmistakable. The fact that the State of Utah is contributing \$2,000 annually toward archaeological research within its borders is most reassuring and a splendid example for other states to follow.

Another not unexpected revelation is anthropology's wide range of affinities. There is however a marked leaning toward sociology with which it is allied in fifteen institutions. In six instances it is connected with the Department of Geology, and in four with Biology. Then follow in diminishing degree its association with Classical Archaeology, History, and Psychology; and only once (in each) is it connected with the Departments of Education, Modern Languages, and Philosophy. Curiously enough this tendency of the Anthropological Sciences to appear as a curricular outgrowth preferably of the Social and of the Natural Sciences, as typified at Yale University, runs counter to the recent (1907) action of the American Association for the Advancement of Science, when it grouped psychology with anthropology under Section H, which hitherto had been devoted to anthropology alone.

YALE UNIVERSITY,
NEW HAVEN, CONN.

TYPES OF CERAMIC ART IN THE VALLEY OF MEXICO¹

By HERMAN K. HAEBERLIN

IN the following remarks I intend to give a brief résumé of my work on the types of pottery found in the Valley of Mexico.

This work consists on the one hand of a typological description of the different forms, and on the other hand of a study of certain artistic problems presented by one of these types; namely, the so-called "Culhuacan" pottery. The archaeological material on which these studies are based was collected by Professor Franz Boas in the years 1911-12, while he was in charge of the International School of American Archaeology in Mexico City.

One of the most interesting features of the excavations of this school consists in the fact that sites were unearthed which showed a succession of different cultural layers. In European archaeology it is a very common occurrence to find one cultural layer lying over one or more layers of other, different cultures. Knossos on Crete, and Troy, are classical examples of sites in the Old World, where as many as six or seven cultural strata are found superimposed; but in American archaeology we have seldom been so fortunate as to find any clear cases of superposition, and we are thus deprived of the safest and most convenient method of establishing the data of relative chronology. Under these conditions, the stratified sites excavated in the Valley of Mexico are of especial importance. In a site a few miles northwest of the City of Mexico, at San Miguel Amantla, three distinct cultural strata were found. The types of these can be identified with types of specimens found in other parts of the Valley of Mexico: consequently we now have a fairly well-defined picture before our minds of the sequence of three culture periods in this area.

The latest period, which is represented by the topmost stratum, is that of the Aztec culture. This was the one that the Spaniards

¹ Paper read at Clark University in the winter of 1916.

met at the time of the Conquista, and which they destroyed. The Aztecs were a Nahuatl-speaking people, who came from the north and overran a people with a much higher culture; namely, the one-time mythical, but now historically rehabilitated Toltecs.

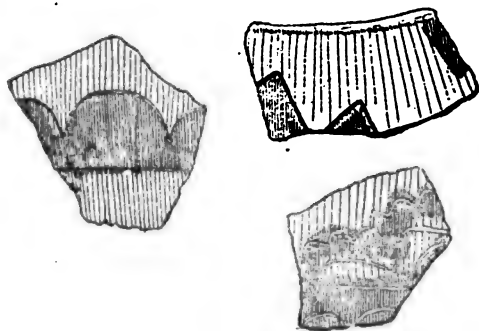


FIG. 1.—Archaic pottery with incised lines and painted surface designs.

The culture of these people is represented by the second cultural stratum of San Miguel Amantla, and we therefore speak of the archaeological specimens of this group as belonging to the Toltec type or the type of Teotihuacan. The latter term refers to another site which belongs to the Toltec culture. The duration of this cultural period must have been very great. This is shown by the great depth of the stratum at San Miguel. The third and deepest stratum of this site leads us back still farther into antiquity. The remains found in this layer consist chiefly of potsherds. For want of a better name, we refer to this culture simply as the "archaic type" or as the "*tipo de los cerros*" (*cerro*, "hill"), since the same type of pottery is also found on the hills of the Valley of Mexico. The stratum of this archaic type seems to merge gradually into that of the Toltec stratum, specimens of either type being in some cases intermixed in the intermediary layers. From this we conclude that the advance of the Toltec culture over the archaic one was presumably not cataclysmic, but took place gradually, by means of a process of absorption. The relation between the Toltec and the Aztec cultures must have been quite different, since between the layers of these two cultures there is a sharp break in the site at San Miguel. There is no transitional zone, as in the former case.

My work consisted in a typological study of the different kinds of pottery found at San Miguel and at other sites in the Valley of Mexico, and in determining to which one of the three the various types belong.

I shall not enter into a detailed description of the various types,

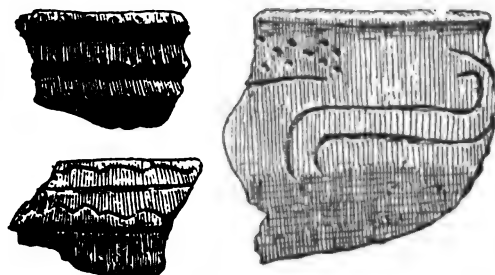


FIG. 2.—Archaic pottery with incised designs.

but shall simply mention a few of the more salient features, and illustrate them by means of a number of drawings.

There are a number of distinct types of pottery that must all be relegated to the archaic culture. Four of them seem to be the most characteristic.

First, we have very numerous—represented a type of brown pottery which is ornamented by thin incised lines and broad red lines, the latter following very unevenly the incised outlines (fig. 1).

Second, there is a type of heavy pottery which is decorated outside with series of indentations made with a dull instrument, probably the end of a stick (fig. 2).

The third type is represented by pottery covered with a white slip, and decorated with incised designs (fig. 3).

Finally, there is a type ornamented with frets (fig. 4) which are

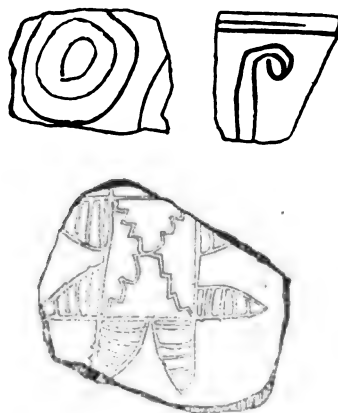


FIG. 3.—Archaic pottery with white slip.

typologically very similar to those of the prehistoric Pueblo type of pottery. This similarity is interesting from the point of view of the generally accepted theory that there was an old cultural substratum common to the cultures of Mexico and to the culture of our Southwest.

Judging from specimens found in other parts of Mexico, there can be little doubt that the archaic or pre-Toltec culture had a very

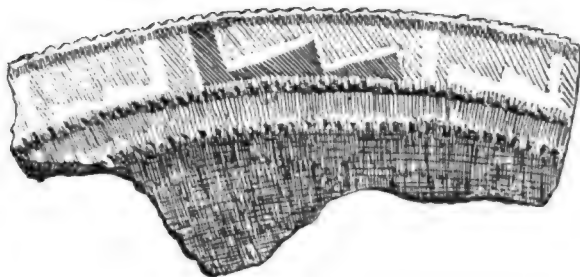


FIG. 4.—Archaic pottery with painted designs.

wide distribution. Professor Boas believes "that a technical culture fairly uniform in its fundamental forms extended in early times from the Pacific Ocean to the Valley of Mexico, and northward to the State of Zacatecas."

The Toltec culture-period is represented by a number of distinct types of pottery, of which we may regard five as the most characteristic.

The first type consists of yellow pottery, painted red on the out-

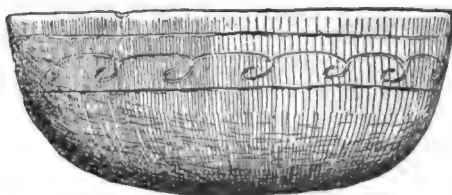


FIG. 5.—Toltec pottery with incised spiral designs.

side of the rim, and with a band of incised spirals in this red area (fig. 5).

The second kind of pottery is characterized by long vertical

grooves running down the sides of the vessels. This feature sometimes gives them a squash-shaped appearance (fig. 6).

The outside surface of the third type of pottery is covered with crude impressions, probably made with the end of a stick (fig. 7).

The fourth type is characterized by horizontal bands of elab-



FIG. 6.—Toltec gourd-shaped pottery. FIG. 7.—Toltec pottery with incised designs.

orate frets in relief, made by pressing a stamp with the negative design on it into the wet clay (fig. 8).

The fifth type shows straight sides, stands on three feet, and is decorated by a series of clay pellets attached to the lower rim of the sides of the vessel (fig. 9). Besides these, there are many elaborate types with attached moulded and painted ornaments.

The third and last culture-period in the Valley of Mexico—

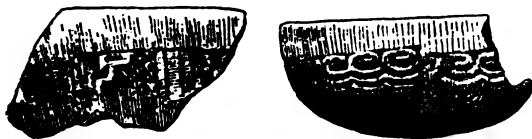


FIG. 8.—Toltec pottery with stamped designs.

namely, that of the Aztecs—is represented by various types of pottery. One of the most important types is a yellowish-red ware with designs painted on one side of the vessel with black paint. This pottery is either bowl-shaped or plate-shaped. The vessels very frequently stand on three conical feet. The bottom of the plates is decorated by intricate painted designs which are stylistically analogous to the Aztec hieroglyphs. This yellowish-red Aztec type of pottery may be easily subdivided into two sub-types. The one is light in color, and is decorated with fine lines (fig. 10);

the other is darker, and the lines of the designs are much heavier (fig. 11). The designs of the first type are comparatively simple, and consist of parallel lines, circles with a dot in the middle, simple spirals, and series of dots. The designs of the second sub-type are

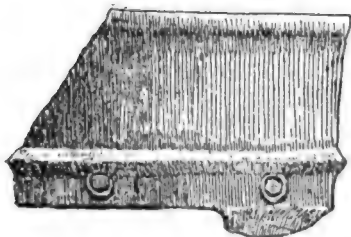


FIG. 9.—Toltec pottery with moulded ornamentation.

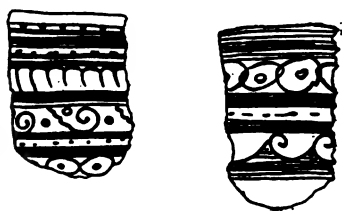


FIG. 10.—Aztec pottery with painted designs.

far more intricate, and show a much greater heterogeneity of form-compositions.

Professor Boas excavated a site at Culhuacan where the two sub-types of the Aztec yellowish-red occur, but with a great preponderance of the latter type; while at other sites (for instance, in the region northeast of Mexico City) the former type is by far the more common one. Culhuacan is a few miles south of the City of

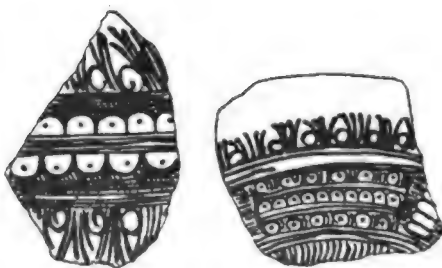


FIG. 11.—Aztec pottery with painted designs.

Mexico, and near the lakes. The excavations at this site brought to light great quantities of potsherds. This material has been divided among the National Museum of Mexico, the University Museum of Philadelphia, and the Peabody Museum of Harvard University.

The sherds of the dark, heavy-lined type found at Culhuacan

are exceedingly interesting, and, as I shall show presently, offer certain specific problems in primitive art. It is important to notice that this sub-type is doubtlessly a local variation of the yellowish-red Aztec type of pottery. While its general shapes and its texture prove it to be typical Aztec, it presents certain ornamental features characteristic of the site of Culhuacan, which distinguish it from the Aztec pottery found at other sites. Such local developments are familiar to the student of primitive art, and are interesting from the point of view of the dynamic evolution of art styles. In the present case we have agreed to call this Aztec sub-type the "Culhuacan" type. The predominating characteristic of this pottery is determined by the fact that its designs are executed with such great rapidity that, instead of presenting the regularity of execution which we usually associate with geometric designs, they show the same characteristics that handwriting ordinarily does. That is to say, the potter, instead of adhering to the ideal forms of his designs, executed them swiftly, in a style characteristic of his own individual motor-habits, just as in the case of our handwriting. When we write, we do not *draw* an *a*, *b*, or *c*, and so on, the way we learned to make them in school; but each individual writes them in a way characteristic of himself, and with more or less variation from the ideal form of the letters. Exactly the same thing happens in the design-elements of the Culhuacan pottery. These design-elements are not very numerous. Some of them occur over and over again on the different vessels. They are not only few in number, but also very simple in form. They are of such a nature, that a comparison of their forms on different pots readily reveals the ideal prototypes, just as the *a*'s and the *b*'s in the handwriting of different persons are not at all the same, but still all are derived from the *a*'s and the *b*'s of our schooldays as the standard prototypes. Several of the reconstructed ideal forms of the Culhuacan designs are shown in the following drawings (fig. 12). They are quite simple, and are geometrical. On the pots themselves, however, they never present the regularity of these ideal forms, but show many variations, and always in such a way that there can be no doubt as to the ideal forms which the potter had in mind while executing the designs.

One of the most frequent patterns is the following, of which I give here a number of variants (fig. 13). Similar variations may be traced for all of the other patterns.

Interesting from the same point of view is the execution of a fringe which is frequently painted on the rim of an ornamental band. The standard form of this fringe is V-shaped; but often this is simplified, as shown in fig. 14. And the whole range of forms intermediary between the full and the reduced form of this fringe may be found in the collection of Culhuacan pottery.

From the fact that we find the same designs executed differently on different potsherds, it is safe to conclude that the individual pot-

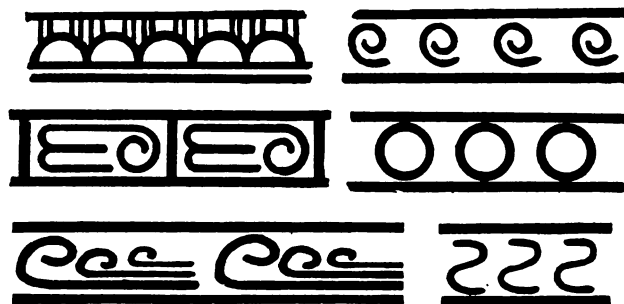


FIG. 12.—Reconstructed elements of decoration on Culhuacan pottery.

ters, in the process of painting with great rapidity, have developed motor-habits characteristic of themselves. We can even go so far as to attribute certain sherds to the workmanship of one and the same potter, just as we recognize the handwriting of a certain individual. On account of the immense amount of material found at Culhuacan, it is possible to conclude that a limited number of potters were at work in Culhuacan who all used the same set of designs and developed a local type of Aztec pottery common to all of them, but who at the same time impressed the individuality of their own motor-habits on their work. This individuality is conditioned by the hasty execution of the designs, the Culhuacan potters evidently producing large quantities of their vessels for the market. These circumstances have led to a sort of factory or mass production which makes the designs comparable to hastily-executed handwriting.

In this brief summary I have tried to give an exceedingly sketchy picture of the problems that archaeological specimens may offer to the anthropologist. The concrete material I have presented points towards scientific methods that are very diverse in their application, and lead to different types of culture-historical understanding. We have seen how, on the one hand, an *extensive* method works out

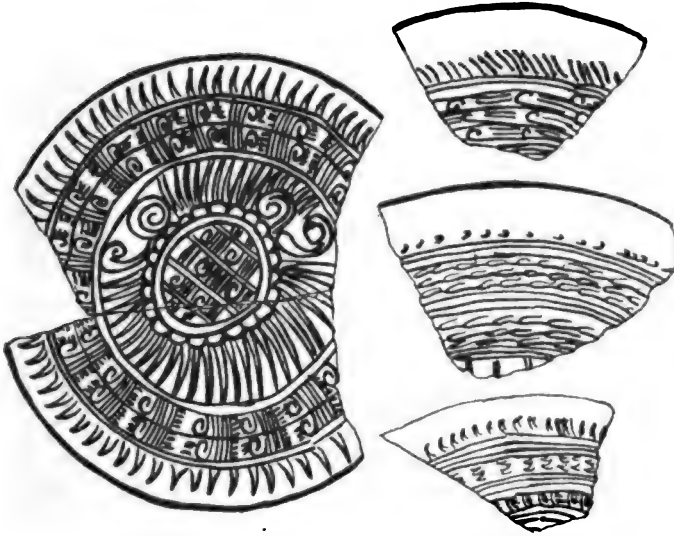


FIG. 13.—Painted Culhuacan pottery.

a typological classification of the pottery forms, and a general characterization of the different culture-periods, by their pertinent artistic styles; and then we have seen how, on the other hand, an *intensive* method leads to an understanding of the specific conditions under which a certain local type of art may develop. The inferences that may be drawn from the archaeological material of Culhuacan are really of a psychological nature, inasmuch as they give us an understanding of the concrete conditions that determine the forms of the designs, and reveal the similarity of the process to our own motor-habits. The psychological nature of this intensive method stands over against the formal character of the extensive method of typological classification. The two methods supplement each other. The method of studying the productions of primitive art intensively or psychologically, of studying the con-

crete conditions under which they have arisen, is very young in anthropology. It consists in an effort to go beyond the usual general statements about primitive art, to go deeper into the problems wherever the nature of the available material makes it possible. This tendency is developing very strongly in American anthro-

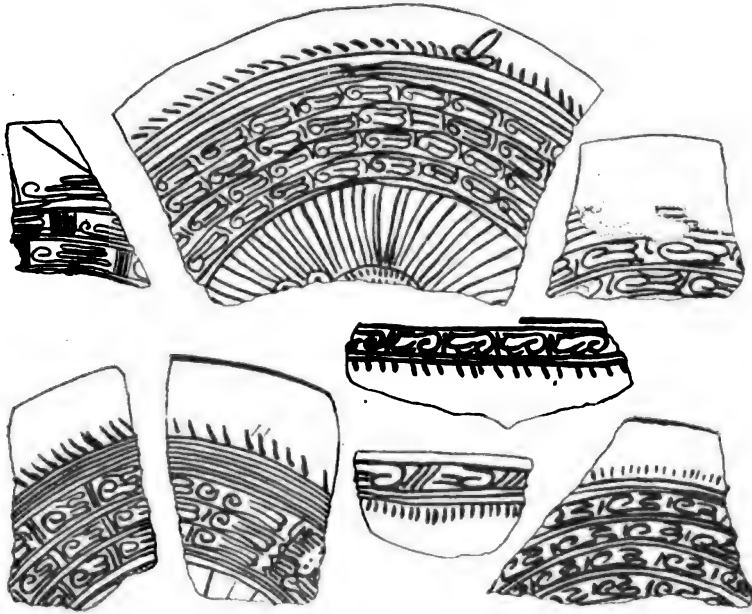


FIG. 14.—Painted Culhuacan pottery.

pology, and is inspired and insisted on by Franz Boas. We have heard much in late years about the relation of anthropology to psychology. Our discussion of this subject has, I fear, often been too abstract and general to make it fruitful either for the anthropologist or for the psychologist. A much better method for mutual understanding is, I think, to illustrate by concrete examples what we mean by the psychological point of view in anthropology. The material alluded to in the above report presents a clear example of this aspect. Within the extensive problem of artistic types in the Valley of Mexico we discover in the local type of Culhuacan a possibility of going deeper and studying intensively the specific conditions and the specific processes that led to the development of an individual art style.

IN MEMORIAM: HERMAN KARL HAEBERLIN¹

By FRANZ BOAS

HERMAN KARL HAEBERLIN, a devoted student of anthropology, valued member of the American Anthropological Association, died on February 12, 1918, after a long illness which had sapped his strength for more than a year. In the summer of 1916 while he was engaged in an investigation of the tribes of Puget sound, symptoms of diabetes developed. He was able to continue his work in 1917, but during the following winter the disease increased, and while on a visit in Cambridge he succumbed to acidosis.

Haeberlin was born in Akron, Ohio, on September 11, 1891. He received his early education in American schools. Later on the family moved to Germany, where he studied at the universities of Leipsic and Berlin. In 1914 he came to Columbia University, where he took the degree of Doctor of Philosophy. For the last two years he held a research fellowship in Columbia University.

I became acquainted with Haeberlin in the summer of 1913, while he was still a student in Berlin. The days which I spent there with a number of young students will remain unforgotten. There were a number of young Germans, a Pole, and a Russian, all devoted to anthropological studies. They attacked their problems under the stimulating influence of Lamprecht and Wundt, and were carried along by the strong ethnological interests which were created by Adolf Bastian and continued by the men associated with the Ethnological Museum of Berlin. They formed a group of the best type of young men that we may wish to see. Independent and aggressive in thought, free of narrow prejudices, their lively discussions embraced the problems of their science, as well as matters of general human interest.

¹ Read at the Annual Meeting of the American Anthropological Association, 1918, at Baltimore, Md.

Haeberlin came to New York, to Columbia University, because the work at that University was most closely akin to his own interests, and furthermore because the problems of American anthropology had already attracted his attention. The character of his work was determined by a keen psychological interest founded on a broad philosophical and historical training. He was never a mere collector of facts, but the material of anthropology served him to understand the relations between the individual and society. Anthropological observations were interesting to him because they throw light upon the relations between individual thought, feeling, and action and social environment. In this sense he was interested in the application of the results of anthropological study to the social problems of our day, because the attainment of true freedom of thought and action presupposes a clear understanding of the social determination of our own activities. His point of view appears most clearly in his review of Wundt's "Folk-Psychology," in his brief note "Anti-Professions," in his discussion of "The Concept of the Unconscious," as well as in a review of Ellwood's "Introduction to Social Psychology."

Among the numerous phases of anthropological inquiry, he was attracted most strongly by the manifestations of the aesthetic life of man. His first investigation related to the development of decorative art among the Pueblo Indians. This study was based on the collections of the Berlin museum and on published illustrations. His point of view at the time when he wrote this paper was strongly dominated by Max Schmidt's investigations of South American art. The inquiry was formal but showed a keen power of analysis of decorative design. The work was to appear in the *Baessler Archiv* for 1914, but I do not know whether it has been published.

Quite a different viewpoint appears in his short paper on the principles of aesthetic form in the art of the North Pacific coast in which the problem of the characterization of art-style and that of the mental attitude of the individual artist are placed in their proper light. This point of view had developed in an elaborate study of Salishan basketry, material for which had been accumulated for many years by Mr. James Teit. He was not to finish

this piece of work, which at his hands undoubtedly would have yielded interesting and important results. A similar problem was taken up by him in a discussion of the designs of archaeological pottery of Culhuacan near Mexico City. A preliminary report on this inquiry appears in this issue of the *American Anthropologist*.

Meanwhile the wider concept of culture as dominating all the phases of tribal life occupied his attention. The way in which he attacked and understood this problem appears clearly in his paper "The Idea of Fertilization in the Culture of the Pueblo Indians." With remarkable clearness of vision, particularly for one who had never seen a primitive people, he grasped the psychological basis of culture as a unit. He summarized his opinions in the following characteristic terms: "That culture is not comprehensible as a summation of diffused elements is proven by the re-interpretation of heterogeneous traits according to a uniform scheme of interrelated ideas. The problem of the cultural setting of the Pueblo is therefore a psychological one." With this he has also indicated his attitude towards the mechanistic theory of cultural diffusion, which plays so important a rôle in modern ethnology.

During the last few years Haeberlin undertook fieldwork, which also gave important results. The results of a brief archaeological investigation in Porto Rico have been published in the *American Anthropologist*. A preliminary note on two trips to Puget sound describing a shamanistic performance of the coast Salish has also been published. He had also finished a special chapter of a discussion of the classification of Salish tribes in which the peculiar suffixes of these languages are treated from a comparative point of view. Another result of this work was his paper on "Types of Reduplication in Salish Dialects." The bulk of the material collected on his trips to Puget sound has not been published. It consists of detailed information on the mythology and social organization of the tribes residing on the Tulalip reservation.

He also devoted some time to studies of Mexican and prepared for publication translations of modern Mexican texts.

His remarkable industry and thorough preparation made it possible for him, in a few years of active work, to produce a very large amount of valuable material.

We have lost in him one of the most promising anthropologists; but we have lost more. All those who knew him remember the charm of his personality and the rare excellence of his character. To us his departure is a personal loss, and he will not easily be forgotten.

COLUMBIA UNIVERSITY,
NEW YORK CITY

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BOOK REVIEWS

METHODS AND PRINCIPLES

Time Perspective in Aboriginal American Culture, a Study in Method.

E. SAPIR. (Canada Department of Mines, Geological Survey, Memoir 90, Anthropological Series, no. 13.) Ottawa, 1916. 87 pp.

Philosophical papers on anthropological matters are rare on this side of the Atlantic, and accordingly Dr. Sapir's essay on the logic of culture-historical studies has met with a warm reception among those of his colleagues who share his interest in theoretical problems. By far the greater part of the paper is devoted to inferential evidence for a temporal arrangement of cultural events; and as might be expected from the author's special lines of work the testimony of physical anthropology is dealt with rather briefly, while considerable space is granted to that of ethnology and proportionately still more to linguistics. This is surely exactly as it should be, since a scholar's most valuable methodological points must develop from his personal experience in the handling of data.

It seems to me accordingly that the linguistic section (pp. 51-85) will prove the most fruitful part of Dr. Sapir's contribution and I wish it were greatly expanded. Here he expounds methods that have proved significant in Old World investigations, but have hitherto remained strangely unfamiliar to the majority of American ethnologists. His demand that field-workers in studying a department of culture should also determine the range and nature of the correlated vocabulary (p. 62) will certainly be welcomed with hearty applause. In his discussion of differentiation the author shows the independence of judgment and constructive boldness that characterize his work in this domain. He insists on a proper weighting of differences before drawing chronological conclusions. Thus, all the Central and Eastern Algonkian languages are considered jointly equivalent to the Arapaho or the Blackfoot branch of the family, whence it is inferred that the pristine home of the stock lies considerably to the west of its present geographical center (p. 80). A corresponding argument is applied to the Athapascan case and to the Eskimo (p. 81 f.).

The ethnological part (pp. 13-51) suffers from a certain degree of formalism. Dr. Sapir recounts all the various methods that have actually been employed in inferring time sequences and his recital partakes somewhat of the enumeration of permissible syllogisms in a textbook of

logic. However, this tendency is balanced by the stimulating discussion of specific instances. The author has evidently sought to draw illustrations from all the principal areas of North America and in view of their range it is not surprising to find a number of errors of detail. For example, the Mandan can hardly be described as a predominantly agricultural people (p. 27) and the Sun dance was not wholly lacking among the Omaha (p. 49) since their communal hunt embraces a highly distinctive feature of the ceremonial complex, though in an unusual setting.

Considering the place of survivals in the history of our science, the extreme brevity of treatment doled out to them (p. 24) is surprising, even if Dr. Sapir were tempted to take a wholly negative attitude towards the method.

Dr. Sapir's position with reference to certain moot-questions is of interest. He anticipates in some measure Dr. Wissler's recently expressed ideas on the correlation of race, language, and civilization (p. 11). He rises in defence of native testimony and is pleased to refer to my own attitude as one of "lofty scepticism" (p. 7). I must protest that it has all the vulgarity of common sense. If the same ceremonial complex, *e. g.*, is shared by the Sarsi, Blackfoot, and Crow and each of these peoples insists that it originated with them, it is difficult to reconcile these statements. The fact that one of them must be correct does not establish the methodological validity of accepting native tradition as history. No one doubts that traditions going back a hundred years ago or so may contain worth while historical information, though it is astonishing what a slight impression significant events make on the aboriginal consciousness even within so brief a span of time. As soon as we go back further, we find that relatively advanced tribes like the Zuñi concoct schemes that cannot be harmonized with objective evidence. When, finally, we consider that even so eminently historical a people as the Chinese, who possess written records, cannot be trusted absolutely beyond 800 B.C., it would be somewhat rash to accept the testimony of North American Indians in matters involving equal or greater periods.

On the other hand, I find myself in hearty accord with the author in regard to the subject of culture areas (p. 44 seq.). All that he has to offer on this point merits careful study. He is certainly warranted in insisting that the culture areas established descriptively as classificatory devices are not chronologically equivalent and require sequential evaluation. Further we should not ignore the possibility of other than the conventional groupings. It is true that by stressing material factors, which involve an adjustment to the geographical environment, Wissler

has demonstrated a considerable stability of the cultural centers. But when the emphasis is shifted, a different result may appear. Thus, by envisaging the intangible totality of cultures rather than their separate elements Kroeber comes to divide the tribes of the Pacific slope of North America as one unit from the entire remainder of the continent. A grouping on the basis of social organization would certainly produce novel results, which would be somewhat similar but by no means coterminous with those arrived at if attention were concentrated exclusively on kinship terms. Or, taking again the customary point of view for comparison, I have long felt that the Southern Siouan tribes should be linked with the Central Algonkian rather than with the typical Plains people.

These hints must suffice to indicate the importance of Dr. Sapir's paper. Since practice is still better than theory, most readers will clamor for a sequel in which the various methodological principles and cautions shall find application to a concrete problem.

ROBERT H. LOWIE

Anthropology Up-to-Date. GEORGE WINTER MITCHELL. The Stratford Company: Boston, 1918. 77 pp.

This three-fourths hour of serious-faced raillery by an expounder of Greek in Queen's University, Kingston, is a symptom of the social maturity to which anthropology is attaining. The chapter heads sound straight enough: Definition, the Founder of Anthropology, Method, Magic, the Social Unit, the Origin of Exogamy, Kings and Priests, Utility of Anthropology, and the like. But at every page or two the quite orthodoxly solemn argument slides into a backthrust:

So if he needed rain, he imitated rain and, as the rain sometimes came, he was fooled into believing that he was the cause of it. You will find quite as bad logic among civilized people. It is no worse than the reasoning of Herbert Spencer as exemplified at the beginning of this chapter.

Or this, on method:

Many ponderous volumes with copious illustrations have been written by modern anthropologists to prove that savages learned to produce fire by the friction of wood. Still more ponderous volumes from every quarter of the globe prove that many primitive peoples have obtained their belief in spirits and gods from visions.

Lucretius told us all that in two short sentences more than nineteen hundred years ago.

The following reduction, which a monthly review succeeded in swallowing to regurgitate in good faith, illumines the instinctive hold of the survivals doctrine on every naïve mentality:

Man began by giving his best to the gods. At first the king or priest was sacrificed, and as he was often thought to be deity incarnate he was eaten by the worshippers in the belief that by doing so they became permeated with the divine spirit. Later an animal, such as a bull, was substituted. Bulls came to be regarded as too expensive and a goat or pig was sacrificed. Man became more niggardly still and fashioned a piece of dough to represent the victim and finally they did not even take the trouble to fashion the dough in any image.

The irony is not always maintained at this level and sometimes dips into sheer burlesque, as in the statement that

Some writers, but they are not up to date, assert that it is his reputation as the Father of Lies which entitles Herodotus to be hailed as the Father of Anthropology.

or the punning, under Cannibalism, on struggling missionaries, *pièces de resistance*, and mission furniture. Yet such passages, in juxtaposition with references to the Golden Bough, Tylor, Reinach's Orpheus, Folkways, Spencer and Gillen, and Robertson Smith, will bewilder and shock those whom a subtler sarcasm would have passed through without a scar. The skit is just broad enough to amuse any well-read person; but much of it is so finely sharpened, and its venom at once so gentle and so genial, as to make it doubly refreshing within the profession. Some of us may even temporarily succeed in inhibiting, under its ridicule, habits in which we have heretofore indulged without shame.

This being the first sustained notice which wit has deigned to give anthropology, the science must be arriving. There remain many pomposities, but thanks are due this professor of the classics for the clatter of deflations caused by the pricks which he has strewn between his compact dedication and his barbed last sentence.

A. L. KROEBER

ASIA

Collection Tovostine des antiquités préhistoriques de Minoussinsk conservées chez le DR. KARL HEDMAN à VASA. Chapitres d'archéologie sibérienne par A.-M. TALLGREN, Conservateur-Adjoint au Musée Historique de Finlande. Société Finlandaise d'Archéologie, Helsingfors, 1917. 94 p. 4°. 12 plates. 90 text-figs.

Mr. Tallgren gives in this elegant volume an accurate and intelligent account of a collection of 1,053 antiquities gathered in the region of Minusinsk on the upper Yenisei in central Siberia by the Russian collector Tovostin. Of this number, 298 are illustrated on the plates and seventeen in the text; the reproductions are excellent. The archaeology of this region has for some time been the object of general interest, as it

is apt to establish a connecting link between the Scythian area of southern Russia and the culture of ancient China. Klementz, Aspelin, Radloff, Martin, and others, have worked in this field, and Tallgren has utilized the labors and results of his predecessors with skill and laudable care. He is not content, however, with a mere description of his material, but endeavors to study it historically and chronologically and in its relation to the surrounding cultural provinces. He thus presents us with a lucid exposé of this vast field, which is of value to every archaeologist; and with the spirit of the true scholar he constantly points out lacunae in our knowledge and problems still awaiting solution.

The antiquities of the stone age along the banks of the upper Yenisei are but imperfectly known, and while many stations of the stone age have been located, rational excavations have not yet been carried out. Finds of stone implements are rather scarce; and many of these, particularly phallic emblems and ceremonial nephrite objects, are doubtless contemporaneous with the early bronze age. The author has justly recognized the similarity of these perforated nephrites with analogous specimens in ancient China, as described by me, but what the real historical connection is in this as well as in other groups still escapes our knowledge.

Bronze and copper socketed celts play a prominent rôle in the early bronze period of central Siberia; at least eight hundred of these are known at present. The author holds tentatively that, unless further information comes to light, this type may be regarded as due to European, more particularly, Hungarian influence. I feel somewhat sceptical about this point. In China this type is not so rare, as the author inclines to assume, but is rather common; even the spiral decorations on the celts are identical in China and Siberia. Assuredly we require more facts before we can hope to formulate positive conclusions. A very characteristic feature of the outfits of Minusinsk culture is represented by the short double-edged daggers provided with a guard, hilt, and blade being turned out in a single cast; exactly the same type prevailed at a certain time in China. Knives of a great variety of forms are still more abundant, and are regarded by Tallgren as thoroughly national, while he seeks the origin of the dagger outside of the valley of the Yenisei. The bronze scythes, according to the author, were utilized by the nomads to cut the grass necessary for the feeding of cattle during the winter, but in no case were they proper agricultural implements. This stricture, it seems to me, is not necessary, for the ancient and modern nomads of Siberia and Mongolia, as we know from Chinese records and present-day conditions, did to some extent

practise agriculture, this being chiefly the task of slaves. The true nature of nomadism still remains to be studied; in fact, however, there is no nomadic tribe in Asia that would ever have subsisted exclusively on its herds and animal products. There is no doubt that the culture of Minusinsk is that of a tribe of horsemen, as evidenced by the numerous horse's bits, stirrups, and other horse equipments, as well as by petroglyphs of mounted archers. I regret that Tallgren has not taken up this important problem as to the identity of this bronze-age people; in view of Radloff's antiquated and unacceptable theories, a restatement of the case becomes imperative. In my opinion, we are here confronted with the culture of a Turkish tribe.

Once more we note the wide distribution of Chinese metal mirrors over Siberia. Those illustrated on Plate VIII, 11, 12, and 13, on the basis of comparative material from China, may with certainty be identified with productions of the T'ang period (A.D. 618-906), while No. 10 belongs to the Sung epoch (A.D. 960-1278). As to the mirrors with designs of vine and grapes, Mr. Tallgren adheres to the theory of Hirth that these originated under the Han, and that the motive was introduced into China by General Chang K'ien toward the end of the second century B.C.; this opinion, however, is no longer accepted and rests on a fallacy: these mirrors range from about the fourth to the seventh century A.D., and the motive bears no relation to Greek-Bactrian art, but hails from Sasanian Persia.

The alloy of the bronze objects has not yet been analyzed for economic reasons, but the author, relying on analyses formerly made, emphasizes the curious fact that they contain a remarkable abundance of zinc, which is also found in bronzes of eastern Russia, even in those suspected of North European provenience and showing in type no resemblance to Siberian objects. Another notable fact as yet unexplained is the great variation in the composition of Siberian bronzes, "especially as zinc is unknown in Chinese bronzes according to the canonical books of the Chinese and eventually a Chinese influence in Siberia might be admitted." I believe I can give some information on this point. A careful analysis of a hundred well-defined ancient Chinese bronzes in Field Museum, soon to be published, has revealed the interesting fact that the variability in the composition of the alloys is exceedingly large and that zinc occurs in rather considerable proportions. Hence the affinity of ancient Chinese to ancient Siberian bronze in its purely technical aspect is perfect and will be definitely established,—a fact which for historical reasons had long ago been suspected by me.

The imitation of a cowry-shell (*Cypræa moneta*) in lime-stone (plate XI, 17) is of great interest, as we have from ancient China a large number of such cowries, both real and reproduced in bone and inscribed. Our knowledge of prehistoric Siberian ceramics is still very unsatisfactory; comprehensive collections are stored up in the Museum of Minusinsk, but not yet published. The Tovostin collection contains only five complete pottery jars and a number of sherds. These jars appear to be reproductions of bronze vessels. I am in perfect agreement with the author in regarding the type of the so-called Scythian kettle as of Central-Asiatic origin, particularly emanating from the region of Minusinsk, and I avail myself of this opportunity to state again that, contrary to what has been asserted by superficial observers, this type meets with no counterpart in China, and that China has nothing to do with its development.

I was but able to touch here on some of the problems suggested by the rich and solid publication of Mr. Tallgren, which it is a pleasure to announce. In a letter he has informed me that after the war he is planning to come to America for a study of our museums; he may be sure that his visit will be warmly welcomed.

B. LAUFER

Hindu Achievements in Exact Science. A Study in the History of Scientific Development. BENROY KUMAR SARKAR. Longmans, Green and Co.: New York, 1918. 82 p.

The ethnologist is always gratified at a book in which the achievements of a people outside the pale of our narrow culture-sphere are vividly and forcibly expounded. Professor Sarkar desires to furnish for popular consumption "some of the chronological links and logical affinities between the scientific investigations of the Hindu and those of the Greeks, Chinese, and Arabs," without going into technical details or relating the migration of ideas. He briefly sets forth, without giving new facts, what the Aryan stock of ancient India has accomplished in mathematics, astronomy, physics, chemistry, metallurgy, medicine, and natural history. Owing to its simple and succinct presentation, his book will doubtless find many readers, and I hope that these will not be confined to students interested in the history of science, but that also many ethnologists will imbibe its lessons, for all science has emerged from the domain of folklore. In making this recommendation, however, it is the reviewer's duty to call attention also to the weak points of the book. Mr. Sarkar does not entirely escape from the exaggerations of the specialist, but, what is far worse, writes from the standpoint of the extreme nation-

alist. The nationalist movement among the highly educated and intelligent Bengali is in itself an interesting phenomenon, yet, whatever the merits and drawbacks of nationalism may be (many of us who have the progress of mankind at heart are absolutely opposed to it), it must never be wedded to science. The history of science can be written only from the universal, broad-minded, and sympathetic viewpoint of humanity, and it makes no difference to the true humanist whether an idea or discovery is due to India or China, to the Greeks or the Arabs, to the Negroes or the Maya. Apodictic and dogmatic assertions, such as "the Hindu were the first to discover gold," and "the Hindu taught the world the art of extracting iron from the ores" (p. 68) cannot be subscribed to by any one; nor is it true that the Hindu discovered zinc during the fourteenth century; at a much earlier date zinc was extracted from the ore in Sasanian Persia and from that quarter became known in China. Caraka and Suçruta were assuredly great physicians, but it is hardly necessary to praise them at the expense of Galen or to belittle Theophrastus or Pliny. Mr. Sarkar's mind is too full of modern scientific facts and terminology and too prone to interpret and to project these without moderation into the thoughts of the Indians. In natural history,

considerable power of observation was exhibited, as well as remarkable precision in description, and suggestiveness in expression. Their nature study was oriented to the practical needs of socio-economic life. It was minute and comprehensive, and so far as it went, avoided the fallacies of mal-observation and non-observation. Whatever be the value of the results achieved, the investigation was carried on in a genuine scientific spirit (p. 67).

These exuberant remarks are not warranted by the facts. I shall cite but one example: the ancient Indians classified the rhinoceros among the five-toed animals (cf. M. Chakravarti, *Animals in the Inscriptions of Piyadasi*); until the dawn of our science of zoölogy it was only the Chinese and the great Al-Beruni who knew correctly that the animal was possessed of three hoofs on each foot. In *The Diamond* (p. 65) I have given a good instance of how the modern Indian school proceeds to claim European discoveries as their own simply by reading into their texts what these do not say, and thus to proclaim the phosphorescence of the diamond as an Indian asset centuries before Boyle.

India was the greatest industrial power of antiquity. It was the manufactures of the Hindu, which, backed up by their commercial enterprise, served as standing advertisements of India in Egypt, Babylonia, Judæa, Persia, etc. To the Romans of the imperial epoch and the Europeans of the middle ages, also, the Hindu were noted chiefly as a nation of industrial experts.

The mere intimation to conceive the Indians as industrialists and advertisers makes me shiver.

The compass as an early invention of India (p. 38) is adopted from Mookerji, but, as shown by me (this journal, 1917, p. 77), this interpretation rests on a fallacy. There is, moreover, no Sanskrit work which mentions the compass. The invention of gun-powder in India is nothing but a learned fable based on the antedating of recent texts, misunderstandings and misinterpretation of terms, seasoned with a strong dose of imagination and uncritical methods. According to the school to which Mr. Sarkar belongs, chemistry, that is, alchemy, is of perfectly indigenous growth in India: the Hindu chemical investigators of the fifth and sixth centuries A.D. even anticipated by one millennium the work of Paracelsus and Libavius, and the physico-chemical theories as to combustion, heat, chemical affinity, were clearer, more rational, and more original than those of van Helmont or Stahl. In my opinion, alchemy is an Egypto-Hellenistic science, first developed in Egypt in the first centuries preceding our era, and was thence transmitted to India and China.

Mr. Sarkar undervalues the expansion and influence of Hellenism, for he states,

Every attempt on the part of modern scholars to trace the Hellenic or Hellenistic sources of Hindu learning has been practically a failure (p. 5);

and his patriotism culminates in the dogma,

India's indebtedness to foreign peoples for the main body of her culture is virtually nil.

This is plainly unsound super-Indianism. My enthusiasm for India is no less than that of our author, but I have been inconsiderate enough to demonstrate that burning-lenses and the puppet-play or marionettes were derived by the Indians from the west; and there is no doubt in the minds of all unbiased students that India, especially as to mechanical inventions, owes a large debt, not to the Greeks, but to Alexandrine-Oriental-Hellenistic civilization of western Asia. I also hope to continue my studies in this direction and to furnish exact evidence for the dependence of Indian alchemy. The Indians, in my estimation, cannot be characterized as an inventive nation. There are many points, particularly as to the evaluation of Indian authors, their works and their dates, in which I am at odds with Mr. Sarkar, but discussions of this nature would require many pages and interest only the orientalist. Taken as a whole, his book is a valuable summary and worth reading.

B. LAUFER

Korean Buddhism. History—Condition—Art. Three Lectures by FREDERICK STARR. Boston: Marshall Jones Company, 1918. 104 p. 37 pl.

Korea has always been the step-daughter of Oriental science. There is, of course, the usual number of books, even those which pretend to give a history of the country, a few good papers by specialists, and a mass of worthless printed matter. There is neither a good grammar nor a tolerably satisfactory dictionary of the language. There is but one man, M. Courant at Lyons, France, who has a claim to the title of Korean scholar. Serious research is required for all branches of Korean culture and, above all, for Korean Buddhism. Professor Starr is fortunate enough to have made four journeys to Korea since 1911; thus he has had occasion to see a great deal, to hear and learn much, and to photograph much. He was especially attracted by Buddhism. His lectures make a pleasant causerie, and when the author recites his adventures and impressions, he is always entertaining, but, not having access to original sources, he sometimes treads on unsafe ground as soon as historical questions or Buddhist philosophy come to the fore. In discussing the introduction of Buddhism into Korea, Starr speaks briefly of the first missionaries Syun-to (Chinese Shun-tao), Mārānanda, and Mik-ho-cha (Chinese Mo-hu-tse, anciently Mak-gu-tse) and arrives at the following anthropological theory (p. 16):

Sundo¹ was a man from Tibet; I suppose he represented the great Mongolian race, that he was a yellow man; Marananda, who brought religion to Pakche was a Hindu; presumably he represented the Caucasian peoples; he may have been dark, but our courts would probably have to call him a white man; Mukocha was called a black man, a negro, and probably really represented the Ethiopian race. Is it not interesting that the peninsula of Korea should have received its first generally spread religion through representatives of the three great races of the world, the yellow, white and black?

Shun-tao was not a Tibetan, but a Chinese monk, who arrived in the kingdom of Kokurye in Korea in A.D. 372 (not 369, as stated on p. 4). Tibet emerges from darkness not earlier than the seventh century A.D.,

¹ Throughout the author transcribes Korean names in their Japanese garb. This procedure is unfortunate, especially with respect to Buddhist nomenclature, and cannot be justified on any rational basis. Korean literature and Buddhism are derived from China, while Japanese Buddhism emanates from Korea (about A.D. 552); accordingly, Korean terms should first be given in Korean, then in Chinese, and finally be identified with their Indian equivalents. Every serious student of Buddhism knows Sanskrit, and all students of Buddhism are familiar with the Indian terminology, and can readily refer to one of the numerous handbooks of Buddhism if in search of explanation.

when Buddhism was first introduced, but in 369 there was no such community as Tibet, nor a Tibetan Buddhist. Mārānanda, who came from China to Korea in 384, may have been an Indian:¹ tradition designates him merely as a Hu, a term which usually refers to the Iranian and other tribes of Central Asia (cf. Courant, *T'oung Pao*, 1900, p. 320, and *Bibliographie coréenne*, III, p. 215). Mik-ho-cha is far from being an African; his name is purely Korean, and all that is known about him is that in the first part of the fifth century he came from Kokurye to the kingdom of Sinra or Silla. The notion of his black skin is purely legendary, as the first element of his name is written with a Chinese character that means "ink."

The highly developed literary cultivation of the Koreans and their achievements in the art of printing are well known. The Chinese translation of the Tripitaka, the sacred canon of the Buddhists, was first printed in A.D. 972. The Koreans followed with the second edition in 1010, which is the oldest and best of all the different editions now in existence, and a copy of which, brought to Japan in the latter part of the fifteenth century, is still preserved in Tokyo (cf. Bunyiu Nanjio, *Catalogue of the Buddhist Tripitaka*, p. xxiv). Starr (p. 26) mentions only a later edition. In many instances the superiority of the Korean text to the Chinese and Japanese versions has been upheld by our scholars.

A few notes are devoted to the curious *miryek* of Korea (p. 23). This word is Korean (not Japanese) and simply means "stone men" (cf. T. de Lacouperie, "The Miryeks or Stone-Men of Corea," *Journ. Roy. As. Soc.*, 1887, with illustration); it has nothing to do with Mi-rok, the Sino-Indian name of Maitreya. I believe that Starr is generally correct in his theory that rude stone figures belonged to the ancient national religion of Korea, and were subsequently adopted by Buddhism and shaped into Buddhistic images. In my opinion, there is some connection here with the stone statues (the *kameniye baby* of the Russians) of Mongolia, southern Siberia, and Russia; but this is a complex problem which remains to be studied at close quarters.

According to Starr (p. 50) "Buddha taught that we end in Nirvana." Buddha taught nothing of the kind. The Nirvana was not for the multitude, but was the highest and ultimate goal and reward of the enlightened one, the Buddha; it meant the extinction of the individual and his absorption in the absolute and infinite.

¹ The Sanskrit name does not allow of an inference as to nationality, as non-Indian monks also usually have an ecclesiastic name in Sanskrit.

A problem not touched upon is the relation of Korean Buddhism to Lamaism. W. W. Rockhill (*China's Intercourse with Korea*, p. 60) has called attention to the fact that the Buddhism of Korea presents many curious analogies with the Tibetan form of Buddhism, and that in the style of church architecture, painting, etc., it has certainly been influenced by it. This coincidence may be explained from the fact that during the seventh century Korean monks were in the habit of making pilgrimages to India, and some of these traveled by way of Tibet and Nepal. The famous Chinese monk and pilgrim, Yi-tsing, has recorded the travels of seven Korean Buddhists (cf. *T'oung Pao*, 1892, p. 462; and Chavannes, *Voyages des pèlerins bouddhistes*, pp. 32-36). Chavannes' work is a complete translation of Yi-tsing's book and merits preference over the rendering of Beal (quoted in the Notes, p. 99), which is incomplete and rather inexact.

The lecture on art does not quite satisfy a student of Buddhist archaeology and iconography. The problem to be pursued would be to study the Korean types and forms in their relation to those of China, Central Asia, and India, and finally to answer the question as to how the Koreans have developed, assimilated, or digested this foreign art and evolved a style of their own. The illustrations form a valuable feature of the book, but no discrimination is made between real art-works, as, for instance, the Bodhisatva in plate IX, who rivals the best Chinese sculptures of the T'ang period, and inane, mechanical modern reproductions, such as the hideous Maharajas on plates XIX-XXI, who are hardly worth the cost of illustration. The paintings on plates XXXI-XXXIII, being reproduced on too small a scale, are unfortunately lost.

It is gratifying to learn that there is a modern movement in the Buddhism of Korea which the author says seems to show that it has real vitality, and he thinks that it may have a political part to play: "if hostile to Japan, when the crisis comes, as it surely will come, when Japan will be tried out again and once for all on Korean soil, Korean Buddhism may be the decisive element in that moment of test." Professor Stårr's lectures must be regarded as an *hors d'œuvre*; he has accumulated considerable material on the subject which he should be urged to publish at the earliest possible moment.

B. LAUFER

Quelques considérations sur les jeux en Chine et leur développement synchronique avec celui de l'empire chinois. Captain GEORGE E. MAUGER. (Extrait des Bulletins et Mémoires de la Société d'Anthropologie de Paris. Paris, 1917.) 44 p., 16 text-figures.

This is a highly interesting and suggestive study in which the author endeavors to trace the development of a certain number of Chinese games and to reveal their relations to political and social conditions. The latter idea is novel and merits attention and consideration. The obvious difficulty is that, while we are familiar with the present-day games, their history has been little studied and to a large extent is still very obscure, chiefly owing to the fact that most of the ancient books on games in which a considerable literature still existed under the Sui dynasty (A.D. 590-617) are now lost. Of draught-games, the *wei-k'i* ("game of blockade") is the national game of China traceable to ancient times; it is a war-game for military instruction, a field of tactical problems. Captain Mauger describes it well and concludes,

This game may be regarded as representing the individualistic period of the empire. Then the great chief domineering through his will and his power has but the one object to conquer for his people the largest possible space of territory. Soon, however, the empire develops; the territories grow more considerable and necessitate a more complex organization; feudalism appears, the great chief directs from his palace his vassals who fight for him, and we have chess.

He goes on to explain the ideas underlying chess from the state organization of the Chou dynasty (1122-247 B.C.). I do not deny that this sort of historico-philosophical interpretation of objects is ingenious, but what is ingenious is not necessarily true. The author, of course, accepts as a fact that chess was known in the China of that period, and its origin is even traced to eleven centuries B.C. in a tradition furnished to him by a Chinese friend and taken from a classical schoolbook. The information of our Chinese friends may well serve us as a guide, but must never be accepted without serious and critical examination. This misconception is caused by the verb *yi*, which means "to play at *wei-k'i*," but is erroneously translated also "to play at chess." Granted that it could have the latter meaning, of what help would it be? We have no description of any game approaching chess from that remote period. The present term for chess (*siang-k'i*, "elephant-game"; the word *k'i* denotes any game played on a board with counters) makes its first appearance during the sixth century A.D., but careful examination of subsequent Chinese documents decides in favor of the opinion that this game is not identical with the modern chess, but was one of astronomical lore referring to sun, moon, and constellations; for the word *siang* signifies also "star, constellation." This type, nevertheless, may have also been a war-game, for, in the literature of the Sui, the bibliography relating to this game is placed at the end of military literature (*Sui shu*, ch. 34, p. 9); while the

following T'ang dynasty assigns books on games to the department of liberal arts (*T'ang shu*, ch. 59, p. 12). *Wei-k'i* and chess, in the same manner as music and calligraphy, belong to the fundamentals of a liberal education and to the prerequisites of a gentleman. The present chess exhibits some principal differences from the Indian game, but, on the other hand, also very striking coincidences with it, so that, in my opinion, Chinese chess is a cross-breed between a national Chinese game (now extinct) and the *caturāṅga* imported from India. It will thus be seen that the history of chess in China presents a problem of great complexity which can be solved only by minute documentary study. A philosophy of games, as well as of other ideas, can hardly be attempted before their real history is completely and exactly ascertained. The author observes, with reference to chess,

Pour nous il nous semble que l'idée du jeu aurait pu aussi bien être introduite et adaptée en se simplifiant dans l'Inde venant de Chine, que le contraire si l'un et l'autre n'a pas eu une origine indépendante.

This opinion is not acceptable. Chess is a thoroughly national game of India without a trace of Chinese influence. If Captain Mauger would try to eliminate the Indian features from Chinese chess, he would discover several traits to support his theory; for instance, the king of our chess is replaced by a general in China, because the majesty of the emperor was so exalted that he could not figure in a game of the vulgar, and he himself never went to war, but sent a general to fight his enemies.

The author is perfectly correct in deriving the divination games of China from India, but then it is somewhat surprising that he overlooks the Indian origin of dice; to him the origin of dice in China remains obscure. The Indian (Pāli) word *pāsa* ("die, dice") bears no relation whatever to Chinese *p'ai* ("board, cards, domino"), as he thinks, but the Sanskrit word *prāsaka* (also *pāṣa*, *pāṣaka*) has been adopted by the Chinese in the form *po-lo-sai* (anciently **pa-la-sak*), a very accurate transcription of the Indian model, which appears as early as the fifth century in the Chinese version of the *Brahmajālasūtra* (§33), translated by Kumārajīva in 406. Subsequently this was abbreviated into *sai* (**sak*); and the modern vernacular names for dice (Peking *šai*, Middle China *sō*, Canton *šik*) are nothing but adaptations of the same Indian word (cf. also Siamese *saka*). Sanskrit *prāsaka* and Chinese *po-lo-sai* denote in particular the Persian game *nard* (our backgammon), introduced into China in the first part of the sixth century, on which I expect to report in the near future. As is well known, dice are of immemorial antiquity in India, being used both for divination and gambling. A

standard book on Indian dice was contained in the literature of the Sui. It is positively certain that in the period of Chinese antiquity down to the first centuries A.D. no dice were ever employed. The methods of ancient Chinese divination are perfectly known, being mainly concerned with the consultation of the tortoise and reading the cracks and lines in the burnt shell of this divine animal. These methods could not lead, and in fact did not lead, to the development of any game.

Captain Mauger devotes the greater part of his article to a study of dice games, dominoes, and playing-cards and their interaction. Of cards he describes a number of local variations, also several hitherto unknown, and makes a substantial contribution to the subject. He doubtless possesses a good practical knowledge of Chinese games and others, but should join hands with one in Paris who is posted on historical questions and would lead him more safely through the complex labyrinth of research of this character. Games are hard nuts to crack. It is also somewhat dangerous to write on Chinese subjects without some knowledge of the language and without a clear perception of historical development. It is a rather disturbing *faux pas* to characterize the Chinese of the sixteenth and seventeenth centuries as "un peuple essentiellement féodal" (p. 41), since feudalism was destroyed at the end of the third century B.C. I would finally remark that A. van der Linde, the famed author of the history of chess, was not a Dane (p. 19), but a Hollander, and that the name of another Hollander, quoted twice (p. 29), is Vissering (not Visserung).

B. LAUFER

The Encyclopaedia Sinica. SAMUEL COULING. Shanghai: Kelly and Walsh (or Oxford University Press), 1917. 634 p.

Although I am not a believer in making cyclopædias, as in the present state of science we have better things to do and our knowledge of China is still far from being complete, the work of S. Couling merits a hearty welcome as a pioneer and as the fruit of hard and patient labors. If it does not satisfy in many points the specialist, it will be a useful reference-book to the public at large and to any one in quest of speedy information on a subject connected with China. The author modestly calls his book a beginning and promises greater completeness in future editions; but the beginning he has made is a good one, and he has provided a basis and framework for a larger and finer building to follow.

B. L.

NORTH AMERICA

The Indian in Ohio. H. C. SHETRONE. (Reprinted from Ohio Archaeological and Historical Quarterly, July, 1918.) Pp. 1-248, a map of the Ohio country, and other ills. Columbus, Ohio, 1918.

The Ohio Archaeological and Historical Society and its museum at Columbus are to be congratulated upon the attractive and useful handbook their Assistant Curator, H. C. Shetrone, has prepared for those who wish to understand the collections in that museum and to realize the significance of Ohio's unrivalled prehistoric remains.

First of all, the reader is given a sound statement of the position of aboriginal America in the culture of the world as a whole. Then follow four chapters dealing with the Indian of the historic period and his reactions to the encroaching whites. This is well done. Succinct accounts of all the Indian wars are given with sketches of the most distinguished chiefs. We sometimes fail to realize that the Indian tribes of the east crowded back into Ohio made their last desperate stand in that territory. The initial victories of the Indians led to President Washington's sending an army under St. Clair which was all but annihilated by Tecumseh, Little Turtle, Brant, and Simon Girty. The success of a later attempt by Wayne is known to all and the failure of the Indians in the war of 1812 brought the great struggle to a close. Still it was not until 1842 that the last Indians left the state—the Wyandot.

This whole story is concisely and skillfully told. The author's attitude toward the Indian is one of sympathy but not that of a defender. We certainly have him to thank for this painstaking review of the critical period in the history of the Ohio Valley tribes.

The final chapters deal with prehistoric Ohio. Some of the topics treated are The Distribution and Character of the Mounds, Fort Ancient Culture, Hopewell Culture, Minor Culture Groups, Questions of Origin and Race. The most interesting section is the reconstruction of the two leading culture types. Here the author is at his best. From his long field experience and his wide ethnological knowledge, he gives us a sketch of what a definite village (Fuert village site) was like in the time of Fort Ancient. This is followed in turn by a contrasted view of life under the Hopewell culture.

We regret that the author did not venture to segregate the mounds and earthworks belonging to each culture upon distribution maps. Also, a clear statement of the apparent chronological distinctions would be a great advantage. However, the author promises these in a future publication.

The volume is well illustrated and attractively bound. As a Museum Handbook it is highly commendable.

CLARK WISSLER

MISCELLANEOUS

Decorative Textiles. An Illustrated Book on Coverings for Furniture, Walls and Floors, including Damasks, Brocades and Velvets, Tapestries, Laces, Embroideries, Chintzes, Cretonnes, Drapery and Furniture Trimmings, Wall Papers, Carpets and Rugs, Tooled and Illuminated Leathers. GEORGE LELAND HUNTER. Pp. 1-458. 580 illustrations, 27 plates in color. Philadelphia and London: J. B. Lippincott Company; Grand Rapids: The Dean-Hicks Company, 1918.

The editorial announcement of this volume promises a series of works on the modern house-furnishing arts and is inspired by the high ideals of *Good Furniture Magazine*. The volume before us deals with the textiles used in house decoration. The principal subjects discussed are Velvets, Laces, Embroideries, Carpets, Rugs, Tapestries, and Wall Papers. While not an anthropological work, the history of the several textiles is outlined and special notice is given to Peruvian and other prehistoric examples usually ignored by textile writers. The characteristics of each recognized class of textiles are concisely stated in terms of the technique.

It is fitting that a work professing to deal with modern art objects should show exquisite taste. No pains have been spared to realize this ideal in the present volume. The color plates are fine, the half-tone engravings excellent and the typography pleasing.

CLARK WISSLER

Yarn and Cloth Making. An Economic Study. MARY LOIS KISSELL, A.M. Pp. xxvii, 1-252. 89 illustrations. The Macmillan Company. New York, 1918.

The author, known to anthropologists for her constructive studies of aboriginal textiles, has put her teaching experience into this small compact manual of cloth making. There are fifty pages of text enumerating the mechanical principles involved in yarn and cloth fabrication, but these are rather as introductions to the main body of the book, which is a closely formalized outline of the historical development of Euro-Asiatic spinning and weaving. The effort has been to extend this outline to include all the primitive forms of these processes and thus present

in one scheme the total textile culture of the world. Accompanying the outline is a full bibliography including the titles of many obscure works on the subject. Lastly, mention should be made of what is in some respects the most useful part of the book, a series of 89 illustrations taken from the best publications and materials available, ranging from archaeological sketches of great antiquity to photographs of modern processes.

Thus, while designed as a textbook for students of household arts, it will be serviceable as a handbook to anthropologists and curators of museums.

CLARK WISSLER

SOME NEW PUBLICATIONS

Broom, R. The Evidence afforded by the Boskop Skull of a New Species of Primitive Man (*Homo Capensis*), Anthropological Papers of the American Museum of Natural History, vol. XXIII, pt. II.; pp. 63-79. New York, 1918.

Gamio, Manuel. Programa de la Direccion de Estudios Arqueológicos y Etnográficos. (Secretaria de Agricultura y Fomento), Mexico, 1918. 44 pp.

Laufer, B. Edouard Chavannes. (Reprinted from the Journal of the American Oriental Society, 1918, vol. 38, pp. 202-205.)

— Loan-Words in Tibetan. (Extrait du T'oung-pao, 2^e Serie, vol. XVII, no. 4, Oct. 1916, pp. 1-152.)

Matsumura, Akira. Contributions to the Ethnography of Micronesia (Journal of the College of Science, Imperial University of Tokyo, vol. XL, Art. 7, 1918). Tokyo, 1918. 174 pp., 36 pls., incl. map, 72 figs.

Moir, J. Reid. Professor Elliot Smith's Views on Flint Implements. (Science Progress, 1919, XIII, 450-453.)

Newcombe, C. F. The McGill Totem Pole. (The Ottawa Naturalist, 1918, XXXII, no. 6, 99 seq.)

Rivers, W. H. R. Dreams and Primitive Culture. A Lecture delivered in the John Rylands Library on the 10th of April, 1918. Manchester: University Press (Longmans, Green and Co.), 1917-1918. 28pp.

Sarkar, Benoy Kumar, assisted by Rakshit, Hemendra K. The Folk-Element in Hindu-Culture; a Contribution to Socio-religious Studies in Hindu Folk-Institutions. Longmans, Green and Co.; 1917, vol. XX, 312 pp.

Spier, Leslie. *Physiological Age: The Relation of Dentition to Body Growth.* (Reprinted from the *Dental Cosmos*, Oct., 1918.) 8 pp.

Starr, Frederick. *Korean Buddhism; History—Condition—Art.* Boston: Marshall Jones Co., 1918, vol. XIX, 104 pp., 37 pls.

Wallis, Wilson D. *Messiahs; Christian and Pagan.* Boston: Badger (The Gorham Press), 1918. 276 pp.

DISCUSSION AND CORRESPONDENCE

THE ETOWAH MOUND GROUP

THE writer visited the great mound near Cartersville, Bartow county, Georgia, in March, 1918. The land had been recently ploughed and no rain had fallen for some time; the ground was therefore very dry and the conditions favorable for observation.

The mound, or mound group, stands on the northerly side of the Etowah river, close to the bank, about three miles from Cartersville. It consists of the great mound, sixty-one feet in height,¹ with a base, three hundred and thirty by three hundred and eighty feet, covering slightly less than three acres. The great mound contains about four million three hundred thousand cubic feet of earth. The area of the top is about one hundred and seventy by one hundred and seventy-six feet, or about seven tenths of an acre. There are two smaller mounds, about fifteen feet in height, one on each flank of the great mound, between it and the river.

The group is situated in a small plain, or bottom land, in the bend of the river, from which the land rises on all sides to the hills. There is a considerable dip, or swale, a short distance from the group on the west-erly, or downstream side.

The plan of this group given in Squier and Davis,² does not give a correct idea of the situation. The group described therein is located on the Coosa river, somewhere in Alabama, apparently.

The plan given in figure 1, *Smithsonian Report*, 1881, page 624, con-veys an entirely erroneous impression of the encircling ditch, which is represented as beginning in the river, below the group, sweeping in a continuous circle nearly around it to the northeasterly side. In this de-scription Charles Whittelsey states that the ditch is about two hundred yards distant from the group of mounds which seems to the writer about correct.

The drawing accompanying the article by Cyrus Thomas³ represents the ditch in about the same fashion; that is to say, beginning in the river below the group, encircling it nearly to the river above. In addition,

¹ F. W. Hodge, *Handbook of American Indians*, vol. I, p. 444.

² *Ancient Monuments*.

³ *Twelfth Annual Report of the Bureau of American Ethnology*, page 299.

the two large ponds, or pits, are shown lying northwesterly from the group connected with the ditch. Some writers have offered the opinion that the ditch originally touched the river at each end.

There are two features of the great mound which have attracted notice in the past. On the southerly, or river side, there is an apron or platform of earth reaching on the westerly side to within about twenty feet of the top, and declining on the easterly side to the level of the ground. It is about fifty feet in width and has often been described as a roadway, or ramp, leading to the top; the final ascent, it is supposed, was accomplished by a flight of steps.

The other feature to which we have alluded is a projection, or slide, of earth on the easterly side, sometimes conjectured to have been a refuse heap.

At the time of the writer's visit, the timber had been recently cut away and the top freshly ploughed. The sides are still as steep as it is possible to make such slopes with the stiff tenacious clay used in their construction. A stone knife was picked up by the writer while ascending the difficult slope on the westerly side.

C. C. Jones¹ has the following statement:

East of this group, and within the enclosure, is a chain of four sepulchral mounds, ovoidal in shape. Little interest attaches to them. Nothing, aside from their location in the vicinity of these larger tumuli and their being within the area formed by the canal and the river, distinguishes them from numerous earth-mounds scattered here and there throughout the length and breadth of the Eto-wah and Oostenaula valleys.

Charles Whittlesey² refers to these small mounds in the following manner:

Two hundred yards to the northeast are the remains of four low mounds within the ditch, near the large pits.

It was these small mounds which, having gained the top of the great mound and looking off in the direction of the northeast, first arrested the writer's attention. The earth surrounding the group of large mounds is dark, nearly black, in color, of a loose loamy texture; growing lighter in color away from the group. Across the small plain, or bottom, the ground rises into a terrace on the easterly and northerly sides, while it drops away into a swale to the westward.

Along the edge of this terrace, the objects described by C. C. Jones stand out prominently in the landscape as red heaps, or low mounds, disposed in regular order on the right hand, or easterly, side. A few

¹ *Antiquities of the Southern Indians*, page 139.

² *Op. cit.*, page 626.

bits of broken pottery may be picked up in the intervening space, or bottom. Arrived at the mounds, they appear distinctly differentiated from the surrounding land in form, color, and texture. The earth upon them is red, tends to unite into masses, and has decidedly the appearance of having been burned. These mounds are distinctly pear-shaped, with the smaller end turned towards the great mound. Numerous bits of broken pottery are lying about them.

Towards the left, in the middle of the circle, three more similar prominences appear, rounding off in the same manner as the first, composed of the same burned, red earth, strewn with broken pottery. They are much less distinct than the first three to the right. Further on, towards the left, or downstream side of the circle, along the inside rim of the swale, the land reveals three slight swellings, on which bits of pottery are more frequent than in the plain. The earth here is very sandy and loose; so much so that the impressions retained in the second group of small mounds have here nearly faded away. Still further to the left, next to the river, is a large refuse heap, abundantly covered with fragments of all kinds. There is a similar heap correspondingly located at the east end of the circle.

By pacing off these mounds, the writer came to the conclusion that they were about one hundred and twenty feet in diameter, and that they were the remains of nine great earth-lodges, or communal dwellings, disposed in a horse-shoe around the three large mounds. The pear-shaped projections on the inner side being the remains of the entrance passages. The style of construction followed being that of the Pawnee Earth Lodge illustrated by Hodge.¹

The writer picked up on the easterly mound of the main group a piece of red clay somewhat larger than the two fists, having through it the perforations left by the hay or straw with which it had been mixed, the whole showing the effects of fire. This lump of clay was smooth and convex on one side, showing the effect of smoothing tools, indicating that it had formed part of the outside covering of some structure. A small piece of the same material was picked up on top of the great mound and some small bits elsewhere. It is evidently the same material as that found upon the small mounds, which has been broken down by weather and plough.

If the writer is correct in the conjecture that these small mounds represent the sites of great earthlodges, a kind of communal dwellings, then they were of exceptionally large size, for the largest heretofore reported range from forty to sixty feet only in diameter.

¹ *Op. cit.*, page 410.

Turning to the ditch, the writer does not hold with those who believe that it completed a circle from the river bank above to that below. The writer found no evidence of the ditch reaching to the river on the downstream, or westerly side. The ground is too low there, the soil too friable and the swale too wide to have admitted its construction. On the upstream side the ground lies too flat and low. The ditch passes through a ridge, or terrace of high ground back of the third, fourth, and fifth mounds, or lodges sites, where the present farm road crosses in a northerly direction, so that the upper portion of the ditch is cut off from the remainder; if, indeed, it was ever continuous. At the extreme easterly end the ditch opens out into a sort of pit, or pond, which, however, is entirely open towards the river. The sides of the ditch are clear cut today and practically perpendicular in the stiff clay of the locality.

In case of inundation from the river, which people of this locality affirm sometimes occurs, the ditch might well have served to carry off, or divert, the waters for the protection of the town; but it seems unlikely that it was intended to afford protection to the town in the sense of a moat.

The recesses which have sometimes been described as ponds, reservoirs, or fish-preserves appear to have been merely pits from whence the material for the construction of the mounds and dwellings was taken. They are on the northwesterly side; one at the end of the ditch, the other across from the former separated from it by a considerable section of undisturbed earth. The latter is merely a pit, having no connection with the ditch system. The so-called pond at the easterly end of the ditch has the same character.

The so-called ramp, or roadway, to the top of the great mound is evidently an addition, or extension, to the great mound itself, which was abandoned in course of construction. Its sides are parallel to three of the sides of the mound, and the westerly face conforms to the sloping side of the mound. It could not have been intended for a roadway, or path, for the dirt is piled upon it very unevenly, especially at the westerly end where it rises in a great irregular hump. That it is an uncompleted extension is also well shown by the drawing of the great mound by Cyrus Thomas.¹ If this conjecture is correct, we have before us an example of the manner by which the Indian mounds grew in size.

The projection or slide on the easterly side of the great mound is a talus formed by the materials washed down from the top surface. All of the erosion from the top was carried off in this way, as shown by the

¹ *Fifth Annual Report of the Bureau of American Ethnology*, page 96.

slope of the entire top in this direction, through a gully which leads out to the talus or slide.

Nothing of especial interest struck the attention of the writer in regard to the two large mounds next to the river bank. There is no evidence of any dwellings in the bottom land surrounding the group of large mounds. It was probably left open for meetings, playgrounds, and similar assemblages.

In Indian villages, the town house was usually placed upon the great mound, which was often occupied by the residence of the chief and his family; while the two large mounds may have served for the sacred fire, disposal of the dead, or other religious purposes. The tribe lived in the circle of great earthlodges. Some Indian towns, with their assemblages of clay bedaubed huts, resembled at a distance a group of burnt brick kilns. (Lowery, *Spanish Settlements*, p. 59.)

In its flourishing days, this town must have presented, in the midst of this beautiful and fertile valley, a truly imposing appearance.

HUBERT H. S. AIMES

SEWANEE, TENNESSEE

CORRIGENDA TO "KINSHIP TERMS OF THE KOOTENAY INDIANS"

A NUMBER of misprints have crept into my paper on "Kinship Terms of the Kootenay Indians" (vol. 20 of this journal, pp. 414-418). They are listed here for the convenience of those who may wish to correct their copies.

Page 414, no. 11: for *ga-d'to* read *ga-di'to*.

" 415, no. 21: read *ga-cwn'a'til*.

" 416, no. 27: read *ga-'aqittsma'k'ini'k'*.

" " , no. 28: read *ga-ṣat.gaxəniyat'u'm'a'l*.

" " , no. 29: read *ga-ll'uma't'i'ṣ*.

" " , no. 30: read *gu-'ok''kuxwe'm'a'l*.

" " , no. 31: read *ga'-gunik'na''amo'*.

E. SAPIR

KINSHIP TERMS OF THE KUTENAI INDIANS

ON page 414 *et seq.* of vol. 20 of the *American Anthropologist* Dr. Sapir gives an almost complete list of the kinship terms of the Kutenai. Only one important term has been omitted—*ah'tski't* "sibling or cousin of opposite sex." Persons who stand in the relation never address each other in the second person, but always in an oblique form of the third person. This leads to some grammatical forms which are never

used in conversation with other people. A man will say to a person who is not his *ah'tski't*, *kin'o'ho*—"dost thou know me?" To his *ah'tski't* he says *k'o'ho*—"does she know me?" He will say to a person not his *ah'tski't*, *hvn'o'one*—"I know him." To his *ah'tski't* he says *hvn'o'mu'tne*—"I know him," where the element *-mu* indicates relation to another third person besides the one addressed, a form that occurs only in subordinating clauses when addressing other persons.

Dr. Sapir's term No. 27 *ga-'aqtsma'k'ini'k'*, while used for a child-in-law's parents, means simply "people."

The term for husband is *nula'qana*; for wife *utna'mu*, derived from *u'tna* "old woman." Term No. 29, the generic term for brother and sister-in-law after mate's death, should be *luna't'e* instead of *u'uma't'*; No. 15, *a'tca*, should be *xa'tsa* or *hatsa*; both forms were heard by me repeatedly. (Many individuals pronounce *tc*, but with tip of tongue raised a little higher than in our *c*; others pronounce almost a clear *ts*.) The reason for the use of *nana* "younger sister" by both sexes is presumably that the word simply means "little one." It is the common diminutive. Great-great-grandparent and great-great-grandchild call each other reciprocally *ats'muq'atuk'puka'm*, from *-k'puk* "root." No. 21, "sister's daughter," signifies also "wife's brother's or wife's sister's daughter," and "husband's brother's or husband's sister's daughter"; and in the same way term No. 20 signifies not only "sister's son," but also "wife's brother's or sister's son," or "husband's brother's or sister's son." The converse relations are formed without the ending *-naki*. For maternal uncle's wife I heard both terms Nos. 16 and 17. It is interesting to note that in the story of Coyote and the Ducks, when Coyote asks his son to wait for his own brothers-in-law, he tells him to cry *a'tskà't'e's katùò*; "brothers-in-law of my father."¹ He does not use the term *xa*, which is evidently used by extension.

The stem for son in all forms, except the first person possessive is *xa'te*; child is *-aqali* (see, for instance, Kutenai Texts, p. 160, line 12, *alaqa'w'e-s* "his children"). The stem for parents is *-akink'*, and from it is derived *aa'kink'na'mo* "relatives" (*ibid.*, p. 98, line 246, Sapir No. 31). The ending *-ma't* in Nos. 28 and 29 expresses the comitative "with; companion"; *-ok* in term No. 30 means probably "all." *A'la* is a term by which the wife of a man designates the second wife of the same man. It also means "female friend."

All terms of relationships form a special plural with the prefix *al-*.

¹ *Kutenai Tales*, Bulletin 59, Bureau of American Ethnology, p. 160, line 8; also in the version recorded by A. F. Chamberlain, *ibid.*, p. 19, line 7.

Vocatives without possessive pronouns occur, but are not common. We have, for instance, *tsú'à* "younger sister!" (*ibid.*, 184.59): *ɣaleine*. "son!" (102.332): *pa't* "nephew!" (*ibid.*, 13.5; 60.26). On the other hand we have with possessive pronoun *kapa'pa* "grandmother!" (196.146): *ka'tsa* "younger brother!" (274.64).

Collective terms expressing several people that are related are formed with the ending *-timo*; for instance, *nawaspa'ltimo* (278.13) "mother-in-law and son-in-law." In cases where the terms are not reciprocal analogous forms are used, which mean the person spoken of and his relatives.

nana'timo, sisters 230.17, from *na'na*, younger sister, *i. e.*, a girl and her younger sister.

tsa'a'timo, brothers 88.20, from *tsa'*, younger brother; *i. e.*, he and his younger brother.

ɣale'timo, parents and children 162.24, from *ɣale'*, child; *i. e.*, he and his son.
ala'kini'k'timo, child and parents 170.109; *i. e.*, he and his parents.

The following table seems to bring out the system with great clearness. The terms to the right (1st column) and left (last column) on the same line express the relationships in question. The Indian term to the left (2nd column) indicates the term used by the individual to the right addressing the individual to the left. The Indian term to the right (third column) indicates the term by which the individual to the left (1st column) addresses the individual to the right (last column). Where there is only one Indian term on a line, the terms are reciprocal.

Great-great-grandfather.	'ats'mi'iq'atvk'poka'm	Great-great-grandchild
Great-grandfather.	a'ts'mi'l	Great-grandchild
Grandfather	} pa'pa	Grandchild
Grandmother		Grandson
Father-in-law		Daughter-in-law
Grandmother	} ti'te	Grand-daughter
Mother-in-law		Daughter-in-law
Wife's parents.	nawaspa'l	Son-in-law
Parents-in-law after death		Child-in-law after death
of their married child.	ɣatkaɣaniyatma'l	of mate
Brother and male cousins.	ali'tski'l	Sister and female cousins
Father's brother.	ɣa	Brother's child
Mother's brother.	ɣa'tsa (ha'tsa)	Sister's child
Sister's husband.	ska't	Wife's brother
Brother's wife.	atsi'	Husband's sister
Mate of sibling of same sex.	atsa'wats'	Sibling of same sex of mate

Mate of sibling of same sex after death of mate <i>luna't'e</i>	Sibling of same sex of mate after death of mate
Father's sister }..... <i>tlde't'</i> {..... <i>pa't'</i>	Brother's son
Father's sister }..... <i>tlde't'</i> {..... <i>pa</i>	Brother's daughter
Mother's sister }..... <i>kukt'</i> {..... ([<i>n</i>] <i>xalenali't'</i>)..	Sister's son
Mother's sister }..... <i>kukt'</i> {..... (<i>swin'ali't'</i>)....	Sister's daughter
Parents' sister's husband.. <i>xa</i>	([<i>n</i>] <i>xalenali't'</i>).. Mate's sibling's son
Father's brother's wife... <i>kukt'</i>	{..... (<i>swin'ali't'</i>).... Mate's sibling's daughter
Mother's brother's wife { <i>tlde't'</i> or <i>kukt'</i>	
Mother..... <i>ma</i>	{..... <i>swin</i> Daughter
Father..... <i>su</i>	
Father..... <i>lulu</i>	{..... (<i>n</i>) <i>xale</i> Son
Mother..... <i>ma</i>	
Elder brother..... <i>lat</i>	<i>tse</i> Younger brother
Elder sister..... <i>tsu</i>	{ <i>nana</i> Younger sister <i>tsiya</i> Younger brother
Husband..... <i>nulaqana</i>	<i>luna'mu</i> Wife

A most characteristic feature of the Kutenai system appears to be the use of reciprocal terms for all those who do not belong to the same household, excepting, however, parental sisters and their reciprocals and including brother and sister and cousins of opposite sex, who as adults would not form members of the same household.

In this respect the Kutenai system forms an interesting contrast to other systems with extended reciprocal terms. Tsimshian and Kwakiutl, for instance, notwithstanding other fundamental differences have reciprocal terms for all individuals of the speaker's own generation, and also for the relations between parent-in-law and child-in-law, and parent-in-law's parent and grandchild's mate.

The use of the terms with the ending *-nalit* is not necessarily derived from the custom of levirate. Its use and that of the term *xa* (which is used in other cases as a reciprocal term) for "father's sister's husband" suggest an extension of use of the term "uncle."

FRANZ BOAS

ANTHROPOLOGY AT THE BALTIMORE MEETING WITH
PROCEEDINGS OF THE AMERICAN ANTHROPOLOG-
ICAL ASSOCIATION FOR 1918

THE twentieth (seventeenth annual) meeting of the American Anthropological Association was held December 26-28, 1918, at the Johns Hopkins University, Baltimore, in affiliation with the American Folk-Lore Society and Section H, A. A. A. S.

The Council meetings were presided over by John R. Swanton, Vice-President.

The following reports were read:

REPORT OF THE PRESIDENT

TO THE COUNCIL AND MEMBERS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION:

During 1918 the Association has passed through the nation's crisis, with strain, but on the whole with a degree of success on which congratulations are due.

Since the two most important aspects of the Association's activities, those relating to its finances and membership and to its publications, are being reported on by the Secretary, the Treasurer, and the Editor, there remains only to review the policies pursued.

The Association entered the year with a floating debt of about \$2,100, and a record for some years past of an average annual disbursement greater than the actual income. As a first step, the Association at its last meeting entrusted to the Editor the delicate and ungrateful task of reducing so far as possible the quantity and cost of its publications, while preserving both their standard of quality and the moral obligations assumed by the Association toward its subscribers. This difficult task Dr. Goddard has discharged with discretion and success. It would appear to be only a recognition of his efforts, if besides being commended he were requested to continue the same policy in force another year; after which there is every reason to hope a return to a normal basis of publication may safely be accomplished.

Second, a review of the financial history of the Association has led to the conclusion that its embarrassments are not to be laid at the door of any one official or administration, but to a lack of adherence by the

Association itself to its own business system. Balance sheets have indeed been submitted annually—but without searching analysis; and provision for the future has often been made on a basis of optimism and loose expectations rather than of carefully calculated estimate. Your Executive Committee voted during the spring that hereafter there should be submitted at the annual meetings, in addition to the customary balance sheet, a statement showing the financial progress or recession of the Association, on the basis of receipts and expenditures properly chargeable to the year reported on, and also in comparison with preceding years. Farther, that following such report, a definite budget be voted on at each annual meeting. This decision of the Executive Committee will no doubt stand in force even if not acted upon by you; but to clarify the situation, and commit the whole body of our membership more closely to responsibility for the Association's fortunes, I recommend that the Executive Committee's action be laid before the Association for ratification.

Third, an effort was made by a number of members to reduce immediately the Association's debt. In spite of the tremendous demands caused by the national emergencies, this effort was not without success. Between six and seven hundred dollars were subscribed, wiping out about one third of the accumulated debts, and giving promise that equal effort during the easier future that looms ahead will soon set the Association free of its longstanding burden. It is a pleasure to report that the contributions received come almost wholly from within the Association's regular membership; although the courtesy of a donation from the American Ethnological Society deserves especial gratitude.

As regards the future conduct of the Association, it is well to recognize that the membership is scattered and diverse, that Presidents, Vice-Presidents, and Committees change, and that the officers who have been wont to give their services for the longest time, the Secretary, Treasurer, and Editor, are also those who in virtue of their positions are entrusted with the Association's most important work. A concentration in their hands of all possible opportunity, and the encouragement by the Association of initiative on their part, subject only to ratification by the Council, accordingly seem called for. For the same reasons, intimate coöperation between these officers is most desirable. It is even possible that some more definite understanding as to the scope of their activities may be worth while. The Editor obviously is *de facto* the agent through whom the bulk of the Association's means are expended. On the Secretary falls in the main the task of maintaining and recruiting member-

ship and subscriptions; in short of providing income. Both are therefore in vital touch with the Association's permanent policies. The Treasurer, on the other hand, may theoretically participate actively in the Secretary's duties, or again be essentially a custodian or administering officer. A clear delimitation between these his possible functions seems never to have been made. It seems desirable that it be made; and I therefore invite the Association to formulate its attitude on the problem. With the Treasurer's duties shifted so far as possible into the Secretary's hands, there is the advantage of concentrated responsibility; whereas if the Treasurer is to remain or become an officer sharing in the formulation of policy, there will ensue a broader participation in activity. The question should be approached both as one of principle and, frankly, as one of the personalities involved. In fact it would be neither fair nor wise for the Association to reach a decision on this point without full consultation with the present and prospective incumbents of the three offices.

In conclusion I wish to thank the Association for the honor bestowed in allotting me some measure of responsibility for its welfare; and to express appreciation of the willing coöperation and effort encountered during my service. The year's progress seems satisfactory; but it is only by unflaggingness of endeavor that the Association can fully realize its purpose and achieve its place as a true representative of its science in the life of the American people.

A. L. KROEBER,
President

December 17, 1918

REPORT OF THE SECRETARY

The Proceedings of the last annual meeting of the American Anthropological Association were published in the *American Anthropologist* for January-March, 1918. There has been no special meeting of the Association nor of the Council during the year.

Two members have died, Dr. James Douglas, of New York, and Dr. H. K. Haeberlin, of the same city. In Dr. Haeberlin the Association has lost one of its most valuable and promising members.

The Treasurer, Neil M. Judd, was called into the service of the Government, and William Curtis Farabee was appointed by the Executive Committee to fill out the unexpired term. Dr. Farabee was then called by the Government as Captain in the Intelligence Department of the Army and B. W. Merwin was appointed to handle the work of the Secretary and Treasurer.

Thirty-three applicants for membership and one for life member were elected.

B. W. MERWIN,
Acting Secretary

REPORT OF THE TREASURER

RECEIPTS AND DISBURSEMENTS, JANUARY 1, 1918, TO DECEMBER 31, 1918

Receipts

Balance on hand, January 1, 1918.....		\$259.71
Anthropological Society of Washington:		
Balance unpaid, January 1, 1918.....	\$87.56	
<i>American Anthropologist</i> , vol. XIX, No. 4.....	45.50	
<i>American Anthropologist</i> , vol. XX, No. 1-3.....	99.75	
Miscellaneous Sales and Postage.....	10.52	
	<hr/>	
	243.33	
Less amount still unpaid.....	163.70	\$79.63
American Ethnological Society:		
Sales and Miscellaneous.....	5.36	
<i>American Anthropologist</i> , vol. XIX, No. 4.....	70.88	
<i>American Anthropologist</i> , vol. XX, No. 1-3.....	231.89	308.13
Annual membership dues:		
Account of 1917.....	91.00	
" " 1918.....	1,859.25	
" " 1919.....	161.85	
" " 1920.....	6.00	
" " 1921.....	6.00	
Life Fellowship.....	100.00	2,224.10
Sale of publications.....		
T. M. Prudden, <i>Memoir</i> , V., No. 1.....		172.98
Engravings:		124.09
Mrs. L. L. W. Wilson.....	10.60	
Dr. Van Rippen.....	33.16	43.76
Miscellaneous and corrections.....		
		88.66
Regular Income.....		3,041.35
Rehabilitation Fund:		
R. B. Dixon.....	50.00	
E. C. Parsons.....	50.00	
P. E. Goddard.....	10.00	
A. L. Kroeber.....	25.00	
C. Peabody.....	50.00	
C. P. Bowditch.....	50.00	
R. H. Lowie.....	10.00	
E. K. Putnam.....	5.00	
A. M. Tozzer.....	50.00	

G. G. MacCurdy.....	50.00	
W. H. Holmes.....	10.00	
W. Hough.....	5.00	
F. G. Speck.....	10.00	
T. Michelson.....	5.00	
C. L. Hay.....	50.00	
A. L. Kroeber.....	5.00	
John M. Wulfin.....	25.00	
J. Howard Wilson.....	10.00	
N. Nelson.....	15.00	
Edward Ayer.....	25.00	
James B. Nies.....	50.00	
Am. Ethn. Society.....	50.00	610.00
Gift from Prof. H. Montgomery.....		4.00
		<u>\$3,915.06</u>
Error unlocated.....		.10
		<u>\$3,914.96</u>

Disbursements

New Era Printing Co:

Amount unpaid, January 1, 1918.....		\$2,117.08
<i>Anthropologist</i> , vol. XIX, no. 4.....	\$370.49	
vol. XX, no. 1.....	331.88	
no. 2.....	255.44	
no. 3.....	228.69	\$1,186.50
<i>Memoir</i> , vol. 4, no. 3.....	176.40	
no. 4.....	249.11	
vol. 5, no. 1.....	124.09	
no. 2.....	52.99	
no. 3.....	70.70	
Title and index, vol. 3, <i>Memoirs</i>	62.09	
Title and index, vol. 4, <i>Memoirs</i>	36.33	771.71
Miscellaneous postage.....		<u>212.08</u>
Cost of printing and distributing publications...		2,170.29
Less transfer to Hiram Bingham.....	137.84	
Less amount still due.....	1,697.66	1,835.50
		<u>334.79</u>
Beck Engraving Co.....	125.34	
Editor's expenses.....	229.34	
President's expenses.....	41.50	
Secretary-Treasurer.....	98.52	
Miscellaneous.....	59.90	
Permanent Fund.....	100.00	
Balance on hand.....	808.49	1,463.09
		<u>3,914.96</u>

PERMANENT ACCOUNT

Receipts

Previously acknowledged.....	1,200.00	
Interest.....	4.00	
From Life Membership.....	100.00	1,304.00

Disbursements

Loan to General Fund.....	1,100.00	
Balance in Munsey Trust Company.....	204.00	1,304.00

The accounts of the Treasurer, B. W. Merwin, have been examined and found correct.

Signed:

F. G. SPECK,
C. PERCIVAL WILKINS,
Auditing Committee

It appears from the above statement that the financial condition of the Association has been improved by the amount of \$968.20.

January 1, 1918

There was owing the New Era Company.....	\$2,117.08	
Cash on hand.....	259.71	
Giving a net indebtedness of.....		\$1,857.37

January 1, 1919

There was owing the New Era Company.....	\$1,697.66	
Cash on hand.....	808.49	
Leaving a net indebtedness of.....	889.17	\$968.20

The difference between these, \$968.20, the improvement in the Association's finances has resulted from the following sources:

Rehabilitation Fund.....	\$ 610.00
Additional Gift.....	4.00
Income, 1918.....	\$2,941.35
Expenses, 1918.....	2,724.89
Amount saved.....	216.46
Credit, transfer of reprint bill.....	137.84
Total.....	\$968.30
Less unlocated error.....	.10
	\$968.20

B. W. MERWIN,
Acting Treasurer.

REPORT OF THE EDITOR

Notwithstanding the diversion of the interest and activities of many of our members from scientific work to public affairs there has been, as yet, no lack of material for publication. This has resulted from the normal delays in publication, since the articles appearing were, in most cases, either prepared before the war or are the results of pre-war activities. A dearth of papers would shortly have resulted had the same conditions continued.

Our publications do and should provide space for the descriptive articles of those workers who have not institutional series of publications in which their output can be accommodated. There are a number of individuals who are not attached to any institution, and unfortunately there are a number of institutions in which anthropological work is being done which either do not have a series of publications established or whose publications at present are inactive. As examples of such institutions may be cited Harvard University, Pennsylvania University, Columbia University and, since the war, the Geological Survey of Canada. The interests of anthropology, quite aside from the special concern of the *American Anthropologist*, require a speedy remedying of this lack of established means for the presentation of the results of fieldwork.

Chiefly the *Anthropologist* should be devoted to the discussion and criticism of papers published elsewhere and to the presentation of original papers dealing with general subjects and methods.

When a prospective dearth of papers is mentioned reference is made to worthwhile and suitable papers. Plenty of articles of some sort are available. These are made up in part of the work of amateurs, some of whom appreciate neither the point of view nor the methods of modern science. Some of the papers prepared by these, however, are worthy of publication, since there is reason to hope that such workers may develop into scientists. For the most part, however, we can expect that in the future available results will only come from men who have been definitely and thoroughly trained in a university department devoted to the subject. There are other papers available which, while they have merit, are somewhat aside in their subject matter from our main interests.

In accordance with the policy and budget of a year ago the *Anthropologist* has been reduced from 600 pages to a little under 500 pages. With the exception of the fourth number of the current volume, very few illustrations have been employed. These few and those appearing in the fourth number have been provided by the authors of the articles except for one or two minor instances.

The following memoirs have been issued:

Volume IV, numbers 3 and 4, "Notes on Zuñi," E. C. Parsons, 179 pages.

" V, number 1, "A Further Study of Prehistoric Small House Ruins in the San Juan Watershed," T. Mitchell Prudden, 50 pages.

" V, " 2, "An Early Account of the Choctaw Indians," John R. Swanton, 22 pages.

" V, " 3, "Notes on Some Bushmen Implements," Bene van Rippen, 25 pages.

Another paper entitled "The Little-Known Small House Ruins in the Coconino Forest," M. R. F. and H. S. Colton, now in galley proof will make about 30 pages giving a total for the volume of 127 pages.

When the budget was adopted, volume XIX number 4 was already in pages and could not well be reduced. The bill for that number, however, appears in the Treasurer's report for this year and is considerably in excess of the cost of the numbers prepared since the budget was adopted. Five numbers of the *Memoirs* have appeared and the bills for them are included in the Treasurer's report while the budget estimate was for four issues only. The entire amount incurred for publications is \$2,170.29. This amount is to be reduced by \$182.59; corrections paid for by authors and a donation of the cost of printing a memoir. This leaves a net cost to the Association for printing and distributing the publications of \$1,987.70.

It is recommended that the same scale of publication be followed another year. It is urged that this programme of economy be accompanied by a continuation of the campaign for the decreasing of the debt by voluntary subscription. The prospect of wiping out our entire debt solely by years of restricted publication ought not to be entertained.

P. E. GODDARD,
Editor.

The Council took affirmative action on the following:

That they ratify the action of the Executive Committee which was embodied in President Kroeber's report;

That the suggestions of President Kroeber with regard to the various officers of the Association be referred to the Executive Committee with power to act;

That the President's report be accepted, with a vote of thanks, and placed on file;

That Dr. Goddard's report as editor be accepted for file;

That the Treasurer's report be accepted and referred to an auditing committee, consisting of Dr. F. G. Speck and E. Percival Wilkins;

That a vote of thanks be extended to Dr. T. Mitchell Prudden for his generosity in meeting the cost of vol. v, no. 1, of the *Memoirs* of the Association;

That the following resolution be sent to the Council of the A. A. A. S.;

That in view of the proposed change of Constitution of the A. A. A. S. and proposed establishment of a Section of Anthropology and Archaeology, the Council of A. A. A. recommends that the name, Section H, become again the name of the Section of Anthropology;

That the President appoint a committee to assist Dr. Hrdlička to finance the *Journal of Physical Anthropology*. The following were appointed: F. W. Hodge (chairman), Franz Boas, A. E. Jenks, George Grant MacCurdy, Charles Peabody;

That the meeting place for 1919 be referred to the Executive Committee;

That a committee be appointed to report on the relationship of anthropology to other sciences with respect to prospective affiliation in the make-up of a national research council, as suggested by Professor John C. Merriam;

That the Committee on Academic Teaching of Anthropology, Franz Boas (chairman), R. B. Dixon, P. E. Goddard, E. A. Hooton, A. L. Kroeber, George Grant MacCurdy, F. G. Speck, be continued as a committee of the Association and that its report be published;

That the report of the Nominating Committee, consisting of MacCurdy, Boas, and Fewkes be accepted.

The Council adopted the following budget for the year 1919:

For printing and distributing the <i>American Anthropologist</i> and <i>Memoirs</i>	\$2,000.00
Expenses of the Editor.....	500.00
Expenses of the Secretary and Treasurer.....	250.00

At the annual meeting of the Association the following officers were elected for the ensuing year:

President: Clark Wissler, Museum of Natural History, New York.

Vice-President, 1919: John R. Swanton, Bureau of American Ethnology.

Vice-President, 1920: George Grant MacCurdy, Yale University.

Vice-President, 1921: A. Hrdlička, U. S. National Museum.

Vice-President, 1922: B. Laufer, Field Museum of Natural History.

Secretary: Alfred M. Tozzer, Harvard University.

Treasurer: Neil M. Judd, U. S. National Museum.¹

¹ Mr. Judd having informed President Wissler that conditions made it difficult and inadvisable for him to accept the office, the President appointed Pliny E. Goddard, Acting Treasurer.

Editor: Pliny E. Goddard, American Museum of Natural History.

Associate Editors: John R. Swanton, Robert H. Lowie.

Executive Committee: The President, Secretary, Treasurer, Editor (*ex officio*), J. W. Fewkes, Edward Sapir, and F. G. Speck.

Council: F. Boas, W. H. Holmes, J. W. Fewkes, R. B. Dixon, F. W. Hodge, A. L. Kroeber, B. Laufer, John R. Swanton, G. G. MacCurdy, A. Hrdlička, A. M. Tozzer, Neil M. Judd, P. E. Goddard (*ex officio*), A. E. Jenks, S. A. Barrett, W. Hough, A. Hrdlička, B. T. B. Hyde, C. Wissler, F. G. Speck, A. A. Goldenweiser, E. A. Hooton, A. V. Kidder, F. C. Cole, L. Spier, L. J. Frachtenberg, R. B. Bean, H. H. Wilder (1919); Byron Cummings, W. C. Farabee, G. G. Heye, H. J. Spinden, C. M. Barbeau, W. D. Wallis, A. B. Lewis, S. Hagar, Miss H. N. Wardle, Theodoor de Booy,¹ F. H. Sterns, S. K. Lothrop, R. T. Aitken, J. E. Pearce, F. Starr (1920); W. C. Mills, H. Montgomery, C. B. Moore, W. K. Moorehead, E. K. Putnam, C. Peabody, C. C. Willoughby, T. Michelson, A. B. Skinner, M. H. Saville, E. W. Hawkes, Louis R. Sullivan, H. H. Donaldson, George Engerrand (1921); Alice C. Fletcher, C. P. Bowditch, S. Culin, R. H. Lowie, C. H. Hawes, E. Sapir, N. C. Nelson, H. Bingham, J. A. Mason, B. W. Merwin, E. W. Gifford, Elsie Clews Parsons, J. P. Harrington, Hutton Webster, H. I. Smith (1922).

Members of Council of A. A. A. S. from A. A. A.: Franz Boas, W. C. Mills.

The President, Dr. Clark Wissler, appointed the following committees:

Committee on Program: R. B. Dixon (chairman), P. E. Goddard (*ex officio*), A. Hrdlička, A. L. Kroeber, B. Laufer, E. Sapir.

Committee on Finance: Charles Peabody (chairman), Edward E. Ayer, Charles P. Bowditch, William H. Furness, George G. Heye, Clarence B. Moore, Homer E. Sargent.

Committee on Policy: Franz Boas (chairman), J. W. Fewkes, W. H. Holmes, A. L. Kroeber, R. H. Lowie, G. G. MacCurdy, Elsie Clews Parsons, A. M. Tozzer.

Committee on Publication: Clark Wissler (chairman, *ex officio*), F. Boas, Stewart Culin, J. W. Fewkes, P. E. Goddard (secretary, *ex officio*), A. A. Goldenweiser, G. B. Gordon, F. W. Hodge, W. Hough, A. E. Jenks, A. L. Kroeber, B. Laufer, G. G. MacCurdy, E. Sapir, M. H. Saville, J. R. Swanton, A. M. Tozzer.

¹ Deceased.

ADDRESSES AND PAPERS

The Friday morning meeting was devoted to the reading of papers and their discussion as in former years. The following papers were read:

The Estimated Weight of the Parts of the Lower Extremities in Living Man: ROBERT BENNETT BEAN, University of Virginia.

The Relation of Towers to Prehistoric Pueblos: J. WALTER FEWKES, Bureau of American Ethnology.

Indian Mounds and Other Relics of Indian Life in Texas: J. E. PEARCE, The University of Texas.

In Memoriam, Herman K. Haeberlin: FRANZ BOAS, Columbia University.

In addition to these the following were read by title in the absence of the authors:

Ceremonial Objects Excavated at Otowi, New Mexico: LUCY L. W. WILSON, Philadelphia.

Excavations at Hawikuh, New Mexico, in 1917 and 1918: F. W. HODGE, Museum of the American Indian (Heye Foundation).

Mountain Haunts of the Coastal Algonquians: MAX SCHRABISCH, Paterson, N. J.

Ethnography of the Jugoslavs: BEATRICE STEVENSON STANOYEVICH, New York.

At the Saturday morning session, papers which had already been published were taken up for discussion. This innovation resulted from the experience of past years, that worth while discussion of papers, new and just read, was seldom possible.

Of the titles published in the *American Anthropologist* for July-September, 1918, the following were discussed:

FRANK G. SPECK: The Basis of Primitive Algonquian Social Organization. (*American Anthropologist*, N. S., vol. XVII, pp. 289-305; vol. XIX, pp. 9-18; *Publications, American Sociological Society*, vol. XII, pp. 82-100; *Canada Geological Survey, Memoir 70*, 1915.)

R. H. LOWIE: Plains Indian Age-Societies. (*Anthropological Papers, American Museum of Natural History*, vol. XI, part 13, 1916.)

ELSIE CLEWS PARSONS: The Separation of Functions of Curing and of Weather Control in Zuñi and Keresan Ceremonialism.¹

TRUMAN MICHELSON: Proofs of Genetic Linguistic Relationship. (Remarks on American Indian Languages, *Journal of the Washington Academy of Sciences*, vol. VII, no. 8, pp. 222-234, April 19, 1917.)

¹ Substituted for article previously announced.

ANTHROPOLOGICAL NOTES.

Dr. Frank Baker, Professor of Anatomy in Georgetown University, and until recently Superintendent of the National Zoological Park, died at his home in Washington, September 30, 1918, in his seventy-eighth year. He was one of the most active members of the Anthropological Society of Washington in its early days, was its President in 1897, and Editor of the first series of the *American Anthropologist* from 1891 to 1898.

An extended account of Dr. Baker's activities will appear in the next number of the *American Anthropologist*.

Captain Robert G. Fuller died in Petersburg, Florida, on February 11. He received the doctor's degree in anthropology from Harvard University in 1916. He was assistant in anthropology at that university for three years. He took part in several expeditions of the Peabody Museum to the Southwest and was a member of Dr. Fewkes's party in the restoration of Spruce-Tree House.

A Swiss newspaper reports the death of Professor Georg Hermann Ruge, director of the Anatomical Institute in 1852, studied medicine at the universities of Jena and Berlin (1871-1876) and received his doctor's degree for a dissertation on the growth of the human lower jaw. From 1876-1888 he was assistant, privat dozent and extraordinarius in Heidelberg, then full professor of anatomy in Amsterdam until 1897, when he was called to Zürich as professor and director of the Anatomical Institute. He edited the *Morphologisches Jahrbuch* and within the last year of his life published a comprehensive work of definitely anthropological interest on *Die Körperformen des Menschen in ihrer gegenseitigen Abhängigkeit und ihrem Bedingtsein durch den aufrechten Gang*. His death occurred on January 21, 1919.

From volume XVI (1918) of the *Archiv für Anthropologie*, which has recently reached this country, we learn of the death of Professor Moritz Hoernes, the well-known Viennese archaeologist. Hoernes was born in Vienna on January 29, 1852, studied classical philology and archaeology at the universities of Vienna and Berlin, and after a long period of scientific activity at the Museum of Natural History of his native city he began to lecture at the university. Among his contributions to

knowledge may be mentioned his archaeological investigations in Bosnia and Herzegovina. Of his more general works *Der diluviale Mensch in Europa* (1903) and *Natur- und Urgeschichts des Menschen* (2 vols., 1909) are probably the best known in this country.

At the meeting of the Anthropological Section of the American Association for the Advancement of Science, held in Baltimore on December 27, 1918, a committee was appointed to take action in regard to the propositions contained in Professor Frassetto's paper.

The committee recommended that the paper be published in the American Journal of Physical Anthropology¹ and that suggestions made by Professor Frassetto be recommended to the consideration of the next anthropological congress, which has to deal with questions of methods of anthropometry.

(Signed) FRANZ BOAS, *Chairman*,
GEORGE G. MACCURDY,
ROBERT BENNETT, *BEAN*.

Mr. Neil M. Judd has been appointed Curator of Archaeology in the U. S. National Museum.

Professor Rudolf Martin has been for some time the successor of Johannes Ranke as professor of anthropology at the University of Munich.

Dr. Aleš Hrdlička, Curator of Physical Anthropology in the U. S. National Museum, has been made an Honorary Fellow of the Royal Anthropological Institute of Great Britain and Ireland.

Dr. Joseph Deniker, the distinguished French anthropologist, died on March 18, aged sixty-six years. Dr. Deniker, who was chief librarian of the Paris Natural History Museum, was born in Russia.

Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, has been designated as the representative of the Smithsonian Institution at the 20th International Congress of Americanists.

Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, has gone to Texas to inaugurate archaeological work near Austin.

Prof. Alfred M. Tozzer, Secretary of the Association, returned in March to his duties in the Division of Anthropology at Harvard University. Prof. Tozzer, with the rank of Captain, had been engaged for many months testing candidates for aviation.

¹ This paper will appear in an early number of the *Anthropologist*.

AMERICAN ANTHROPOLOGICAL ASSOCIATION OFFICERS AND MEMBERS 1919

OFFICERS

PRESIDENT: CLARK WISSLER, American Museum of Natural History.
VICE-PRESIDENT, 1919: JOHN R. SWANTON, Bureau of American Ethnology.
VICE-PRESIDENT, 1920: GEORGE GRANT MACCURDY, Yale University.
VICE-PRESIDENT, 1921: A. HRDLÍČKA, U. S. National Museum.
VICE-PRESIDENT, 1922: B. LAUFER, Field Museum of Natural History.
SECRETARY: ALFRED M. TOZZER, Harvard University.
ACTING TREASURER: PLINY E. GODDARD, American Museum of Natural History.
EDITOR: PLINY E. GODDARD, American Museum of Natural History.
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THE USEFUL PLANTS OF COPAN¹

By WILSON POPENOE

LIKE their descendants who inhabit Guatemala and Yucatan at the present day, the ancient Maya were doubtless an agricultural people who depended principally upon maize, beans, and squashes for their staple foodstuffs, cultivating in addition a number of other crops which played a less important part in their dietary.

Considering a particular portion of the Maya territory, the valley of the Copan river in western Honduras, what were some of the plants which produced foodstuffs or were otherwise useful to the ancient inhabitants? In attempting to answer this question several lines of investigation have been followed. First a catalog has been made of the useful plants found in the valley at the present time; as determined by two visits to the region in the spring of 1917. Next by studying the known geographic distribution of the various species in this list it is possible to indicate which were probably in the region in pre-Colombian times and which are of recent introduction. And finally, taking the species known to be indigenous, the utilization of certain of them by the ancient Maya is borne out by archaeological observations; while others lacking direct confirmatory evidence of this character must be considered to have played a part in the economy of the Maya solely because they have very evident uses, and because they are known to have been in the region since a remote period.

¹ I am greatly indebted to Mr. W. E. Safford of the Bureau of Plant Industry for carefully criticizing the manuscript of this paper, and for adding numerous items of interest.

If, as believed by archaeologists, the ancient inhabitants of Copan were bound by ties of commerce with the peoples of contemporaneous cities to the northward, such as Quirigua, Menche Tina-mit,¹ and Palenque, there was probably an exchange of many important articles between these different regions. The Quirigua region in the lower Motagua valley, because of its proximity to Copan, must certainly have been drawn upon for many plants which do not exist at the higher elevation of Copan. However, the plants grown in the region of Copan itself are the only ones which will be considered in this paper.

The valley of the Copan river is one of those favored spots which are scattered here and there throughout Central America. There are many others very similar in character, and wherever one of them is found, it will generally be observed that it has been the scene of intense agricultural activity for centuries. Perhaps there have been periods when the forest has been allowed to reclaim the soil, as has been the case at the ancient city of Copan in recent centuries, but the unusual natural advantages of these regions have assured their cultivation, more or less continuously, since the earliest times.

Varying elevations give these Central American valleys different climatic conditions. Those in the lowlands are hot and humid, and the rank tropical vegetation is much more difficult to control than it is at elevations of 2,000 feet or more. In Guatemala, some of the most fertile and intensively cultivated valleys lie at elevations of 3,000 to 5,000 feet. The ancient Maya, however, seem generally to have chosen lower elevations. Among the sites of their capitals, Copan is one of the highest. The elevation here, as closely as could be calculated from a series of readings taken with an aneroid barometer, is 1,900 feet. The climate, therefore, is not so hot as that of Quirigua, and the exuberant tropical vegetation of the latter place is conspicuously lacking. Agriculturally considered, however, Copan would appeal to the modern European as a much more favorable region than Quirigua.

If we accept the hypothesis of Prof. Ellsworth Huntington, to

¹ More generally known as Yaxchilan.

the effect that there has been a shifting of the climatic zones throughout the Maya territory, with the result that regions now considered almost uninhabitable were formerly much more salubrious, it is easy to understand the presence of thriving communities in such regions as the Usumacinta valley. Without some such hypothesis it is difficult to explain the facts as observed. In the case of Copan, however, there seems to be no reason why the site could not have been occupied by the ancient Maya under the same climatic conditions which obtain today.

The rainy season at Copan begins early in May and lasts until January. While there is no accurate means of judging, the amount of rainfall may be about the same, or slightly heavier, than it is in the Guatemalan highlands. At Guatemala city the range is from 30 to 60 inches, with an average of about 50 inches. At Copan it may perhaps be 50 to 70 inches, judging from the length of the rainy season and the character of the vegetation.

The hottest part of the year is toward the end of the dry season April and May—while the coolest part is from November to January. Copan is not high enough in elevation to experience any very cold weather, such as occurs in parts of the Guatemalan highlands. Its minimum temperature is probably between 40° and 50° F.

On uncleared slopes and knolls in the upper end of the valley the forest, which is doubtless a remnant of that which extended over the entire valley floor until some fifty years ago, is fairly dense. It is not of the distinctly tropical appearance which characterizes the forest at Quirigua, but has an abundance of tall, slender trees festooned with long moss (*Dendropogon usneoides* (L.) Raf.), with a dense undergrowth of shrubs. The splendid *cohune* or *manaca* palm (*Attalea cohune* Mart.), so impressive in the forest above Quirigua, is nowhere seen. Climbing palms are also absent, while the large leaved *aroids* and the *lianas* which are so abundant in lowland forests are comparatively rare.

The soil on the valley floor is a heavy, black, sticky clay loam of good depth. On the slopes and hillsides around the valley it is a dull brown or tawny clay, often gravelly in layers, and covered with a surface layer of black clay where it has not been exposed to

erosion. The black soil of the valley floor is excellent, from an agricultural point of view; it is sufficiently heavy so that its fertility is not easily exhausted, yet it is not too stiff to permit of tillage. The principal crops grown upon it at the present time are tobacco, maize, and sugar cane, the two former being grown alternately upon the same ground. Maize is planted at the beginning of the rainy season, about the first of May, and is harvested before the first of October. Tobacco is then planted in the same soil during the month of October, and comes to maturity after the end of the rainy season, in February and March. Tobacco is the principal export crop of Copan, while maize is extensively grown for local consumption. Sugar cane is cultivated in the lower part of the valley and is made into *panela* or crude sugar. In the manufacture of this product only the most primitive methods are employed.

Coming now to a consideration of the economic plants found in the valley of Copan at the present day, we may divide them, for convenience, into eight classes, namely: cereals and vegetables, fruits, beverage plants, plants used for seasoning and flavoring, fiber plants, plants used for coloring and dyeing, fence and hedge plants, and miscellaneous useful plants. In each division an attempt has been made to consider first the most important indigenous species, with a note as to their common names and uses; toward the end of each section will be found the introduced species in italics with a note as to their origin. These latter cannot have played a part in the life of the ancient Maya, but it seems worth while to include them, in order to complete the list of useful plants found in the valley at the present time.

CEREALS AND VEGETABLES

Zea mays L. Known in Spanish as *maiz*, in English, maize or Indian corn. Several different varieties are grown in the valley of Copan at the present day. Some of these differ in the time of maturing, others in the color of the grain. Maize was undoubtedly the great staple food crop of the ancient Maya, as it is today among their descendants. It is prepared for eating in very few ways, nearly the entire crop being consumed in the form of *tortillas*, thin round

cakes made by treating the maize with lye, grinding it coarsely on the *piedra de moler* or grinding stone, adding enough water to make a paste, and cooking the thin cakes for a few moments on a clay griddle.

Phaseolus spp. The *frijol*, or bean. Several species are represented among the beans commonly cultivated in Central America. The black bean, a form of *P. vulgaris* L., is by far the commonest. It ranks next to maize as a staple foodstuff among the present inhabitants, and its cultivation dates from remote antiquity.

Pepo maximus (L.) and *Pepo vulgaris* Moench. The *ayote*, or pumpkin and squash. Numerous varieties are grown, varying in size and shape as well as other characters. Often the vines are cultivated in maize fields; they are also grown in dooryards and about the huts of the natives. The flowers and the green fruits, while still very small, are sometimes cooked and eaten with meat. The mature fruit is an important article of food. The seeds (*ayoachilli*) are dried in the sun, after which the kernel is removed and eaten. The squash is known to have been an important food plant in the earliest times, and doubtless played an important part in the daily life of the ancient Maya.

Chayota edulis Jacq. (*Sechium edule* Swartz). The *guisquil*, usually called chayote in English. A cucurbit which is exceedingly common in Guatemala, and much esteemed by the Indians. Its pear-shaped or roundish fruits, three to six inches long, may be either smooth or prickly externally, white or green in color. When boiled they somewhat resemble summer squash. Many varieties are grown in this region. Doubtless their cultivation dates from a very remote period.

Ipomoea batatas (L.) Poir. The *camote*, or sweet potato. This is not a common crop in the vicinity of Copan, but is fairly well known to the better class of inhabitants. Purple and yellow varieties are grown, both rather inferior in character, as the tuberous roots are slender and small. Cultivated by the Aztec in Mexico, this root crop was probably used by the Maya as well.

Yucca elephantipes Regel. The *isote*, a plant often used for hedges and fence rows, but producing flowers which are eaten, most

commonly in the bud stage but also when fully developed. They have a bitterish taste when cooked, and are eaten with meat stews or are mixed with other vegetables to form a salad. Probably its cultivation in this region dates from very ancient times. Its leaves yield a fine fiber, but this does not seem to be used in Copan at the present time.

Lycopersicum esculentum Mill. The *tomate*, or tomato (Nahuatl, *xitomatl*). This common vegetable was cultivated by the Aztec. It should also have been known to the ancient Maya of Copan. At the present time it is a very common plant, but the varieties grown are inferior, the fruits rarely attaining to the size of walnuts. They are used principally to flavor stews.

Physalis pubescens L. The *millomate*, usually known in English as ground-cherry or husk-cherry. Not common in Copan at the present time, but exceedingly abundant in the nearby Guatemalan highlands. It was cultivated by the Aztec, and may well have been used by the ancient Maya. It is used by the Guatemalan Indians as an addition to meat stews of all sorts.

Manihot utilissima Pohl. The *yuca*, or cassava plant. This was a staple food crop of the greater Antilles and of the Amazon basin in pre-Columbian times, as it is today. To the Mexicans it was known as the tree-camote (*quauhcamotl*) in these regions. It is occasionally seen at Copan and in other sections of Central America, but it is to be doubted if it was much cultivated here during the days of the Maya occupancy.

Dioscorea alata L. The *ñame* or yam. Scarcely known at Copan today, but said to be grown in a few gardens. It is, in all probability, a native of tropical Africa and was not cultivated by the ancient Maya. It was brought with negro slaves from Africa to the New World. The sweet potato seems to be preferred to it in this part of Central America at the present time.

FRUITS

Spondias purpurea L. The *jocote* or Spanish-plum (Nahuatl, *xocotl*, now usually known in Mexico as *ciruela*). One of the commonest indigenous fruit trees throughout this region. It is propa-

gated very easily, either by seed or by planting large cuttings, the latter sometimes being put in as fence posts. Several varieties or races are grown at Copan, varying in size, form and color of the fruit, as well as in flavor. Undoubtedly this was an important fruit among the ancients, as it is among their descendants of the present day. *Jocote* trees are common among the ruins of Copan.

Spondias lutea L. The *jobo*, or hog plum. A species much inferior to the last in quality of fruit. It is a common indigenous tree of this region. The fruits are small, and have a rather acrid taste, but are eaten by the natives.

Psidium guajava L. The *guayaba*, or guava. One of the commonest fruits of present day Copan, and doubtless well known to the ancients. It grows abundantly, both wild and cultivated. The fruits vary in size and shape, but most commonly are round, about an inch and a half in diameter. They are principally eaten out of hand.

Psidium molle Bertol. Also called *guayaba* at Copan, but known in some other regions as *guayaba ácida*, or sour guava. A very common indigenous plant, found on all the hills surrounding the valley. The fruit, which is greatly inferior to that of *P. guajava* in quality, is round, an inch in diameter, very acid when ripe. The plant is smaller than *P. guajava*, with the young leaves softly pubescent. The fruit does not seem to be much used at present.

Byrsonima crassifolia HBK. The *nance*, called *nanche* in Mexico (Nahuatl, nantzin). A very common indigenous tree throughout this part of Central America, frequently growing on rocky slopes. The small yellow fruits, the size of a large cherry, contain a large seed and are of rather harsh taste. They are nevertheless known to the ancient Maya.

Persea americana Mill. (*P. gratissima* Gaertn.). The *aguacate* (Nahuatl, ahuatl), known in English as avocado. In all probability this fruit was cultivated in ancient times. It is not common today at Copan, but there are a few trees along the river. They are all of the West Indian race, which is the most successful at elevations below 2,500 feet in this part of tropical America. It is unfortunate that more is not known concerning the part which the

avocado played among the Maya, now that this fruit is attracting so much attention in the United States.

Persea sp. The *shucte* or *chucte*, known as *coyó* in northern Guatemala. A species closely allied to the *aguacate*, but having a ferruginous tomentum on the young branchlets and lower surfaces of the leaves, while the flowers are marked with red at the base of the perianth segments. The fruit resembles that of the *aguacate*, but is different in flavor. As far as can be judged, the tree is indigenous in this region.

Calocarpum mammosum (L.) Pierre. The *zapote* (Nahuatl, *tzapotl*). Indigenous in this part of Central America, and likely an important fruit in ancient times. There are only a few trees in the valley of Copan today. Northward in Guatemala it is very abundant.

Achras zapota L. (*Sapota zapotilla* Coville). The *nispero* or *chico*, called *sapodilla* in English. A delicious fruit, common in the lowland forests of eastern Guatemala, and occasionally cultivated in the valley of Copan at the present day. Chicle, from which chewing gum is manufactured, is obtained from this tree. This must have been an important fruit among the Maya.

Muntingia calabura L. The *capulín*, a small tree which grows abundantly along the banks of the Copan river, especially in the vicinity of the ruins. Its fruits are red, the size of a cherry, sweet, with numerous minute seeds. Not a fruit of great merit.

Licania platypus (Hemsl.) Fritsch. The *sunza* or *sunzapote*. A large tree which bears rough, brown, irregularly shaped or oval fruits the size of a small melon, with a large fibrous seed and scanty pulp resembling the true zapote in flavor. A few trees are growing near the present town of Copan. Indigenous in this general region.

Hymenaea courbaril L. The *guapinol* (Nahuatl, *quauhpinoli*, "pinoli tree"). A leguminous tree producing short plump pods containing a sweetish pulp (pinoli) eaten by the Indians. Widely distributed in Central America, and known, doubtless, to the ancients.

Annona reticulata L. The *anona*, or custard-apple. This tree is wild and abundant in the valley, principally along ravines and

water courses. Its heart-shaped fruits are not as good as those of the *anona blanca*, but are esteemed by the natives. Probably known here in ancient times.

Annona purpurea Moc. & Sessé. The *suncuya*. A tree with much larger and coarser leaves than the preceding, and enormous round fruits, covered with sharp conical protuberances. The flesh is orange colored, and resembles in flavor the North American papaw (*Asimina triloba* Dunal). The natives do not consider it wholesome; it is commonly believed, in fact, to induce fever. It is unquestionably indigenous in this region, being found abundantly along water courses.

Annona diversifolia Safford. The *anona blanca*. Comparatively rare, but one of the finest *anonas* grown here. The fruits are similar to those of *A. reticulata* in form, but larger, and glaucous externally. The flavor is sweet and pleasant. This is a really good fruit which must have been esteemed by the ancient Maya.

Annona muricata L. The *guanábana*, or soursop. Not common, but a few trees are said to be growing in some of the *fincas* near Copan. Probably its introduction into this valley is comparatively recent.

Casimiroa edulis LaLlave & Lex. The *matasano*, or white sapote. Not so abundant here as it is in the highlands of Guatemala, but occasionally seen. One of the common indigenous fruits of Central America. It must certainly have been known to the ancients.

Vitis caribaea DC. The *uva silvestre*, or wild grape. An indigenous species which climbs over trees in the ravines around the edge of the valley. Its fruits are small and sour, but are used by the natives.

Carica papaya L. The *papaya*. An important fruit commonly cultivated in the gardens of Copan at the present day. It must have been known to the ancient Maya, since it is indigenous in this part of tropical America.

Cereus sp. Erroneously called *tuna*, which name properly belongs to species of *Opuntia*; its correct name in Spanish is *pitaya* or *pitahaya*. This cactus, with 3-angled stems and large rose-colored fruits, is grown in one of two gardens.

Ananas sativus Schult. The *piña*, or pineapple. Grown in several gardens near Copan, and undoubtedly one of the fruits cultivated by the ancient Maya.

Inga radians Pittier. The *paterna*. A leguminous tree producing a large, flattened pod containing a sweet pulp. Not common in Copan at present, but abundant in Guatemala. It may likely have been one of the food plants of the ancients.

Anacardium occidentale L. The *jocote-marañon* or cashew. Rarely seen, but there are a few trees in the valley. While indigenous in northern South America, it probably was not known this far north before the Conquest.

Musa sapientum L. and *M. paradisiaca* L. The *guineo* or banana, and the *plátano* or plantain. Both these species are abundant at Copan, several varieties of the banana being grown. They must have been introduced since the Conquest, and hence were not known to the Maya.

Mangifera indica L. The *mango*, a well known East Indian fruit introduced since the Conquest, and now very common in tropical America. It is quite successful at Copan, and has become one of the commonest fruits. The varieties seen here are very inferior, however.

Citrus aurantium L., the *naranja dulce* or sweet orange; *C. limetta* Risso, the *lima* or sweet lime; *C. limonia* Osbeck, the *limón* or sour lime; *C. decumana* L., the *cidra* or citron. All these citrus fruits, of Asiatic origin, have been introduced since the Conquest and are now grown in the gardens of Copan. The sweet orange and sour lime are particularly common. The citron is rare.

Cocos nucifera L. The *coco* or coconut. Whether it be considered that this plant is of Asiatic or American origin, it seems practically certain that it was not known in Central America before the advent of the Spaniards. It is now fairly abundant in this region.

Punica granatum L. The *granada*, or pomegranate. A few bushes are growing in Copan dooryards. The species is of recent introduction, its home being in the Orient.

Tamarindus indica L. The *tamarindo* or tamarind. This old-world tree is of very recent introduction in Copan, there being only a few young specimens four or five feet high.

BEVERAGE PLANTS

Theobroma cacao L. and *T. Ciocarpum* Bernoulli. *Cacao* or chocolate. Undoubtedly the Maya prepared one of their important beverages from cacao. The seeds were also used as currency by the Maya in Yucatan at the time of the Conquest, and even much later.

Theobroma bicolor Humb. & Bonpl. The *patashte*. This species is very similar to the *cacao*, but the seeds are larger and not so rich in flavor. It is indigenous in this part of Central America. Probably it served in ancient times, as it does today, to prepare an inferior beverage, or to mix with *cacao*.

Coffea arabica L. *Café* or coffee. Of oriental origin, and not introduced into America until some time after the Conquest. It is now cultivated to a considerable extent in the vicinity of Copan.

PLANTS USED FOR SEASONING AND FLAVORING

Capsicum frutescens L. *Chiltepe*. This is the small, perennial species of chile pepper, whose fruits, though no larger than peas, are exceedingly piquant. It is one of the common plants growing on the ruins at the present time. Doubtless it served in ancient times, as it does today, to make chile sauce.

Capsicum baccatum L. *Chile* or chile pepper. The annual chiles are much larger than *C. frutescens* and not so hot. They are cultivated in the gardens of the natives. Several varieties are common.

Vanilla planifolia Andr. *Vainilla* or vanilla (Nahuatl, *tlilxochitl*). The climbing orchid which produces the vanilla "bean" is said to occur in the forest not far from Copan.

FIBER PLANTS

Gossypium peruvianum Cav. *Algodón* or cotton. This was one of the principal textiles of the ancient Maya, furnishing the material for most of their clothing. While not grown commercially near Copan at the present time, the few plants seen in dooryards about the town indicate that it thrives here, and it may have been cultivated extensively in ancient times. Possibly other species than *G. peruvianum* have grown here.

Sabal sp. Commonly termed *palma real* (royal palm). An indigenous palm with fan-shaped leaves, somewhat resembling the cabbage palm of Florida in general appearance. It is common in the valley of the Copan river a short distance below the present town, but is not now seen in the immediate vicinity of the ruins. It furnishes most of the fiber used by the present inhabitants of the valley to manufacture hats, mats, and other useful articles. Doubtless it was put to similar uses in ancient times.

Carludovica palmata R. & S. This plant, which yields a finer fiber than the *palma real*, is not found in the immediate vicinity of Copan, but is said to grow at lower elevations not far distant. It furnishes the fiber from which the so-called Panama hats are made. It is used by the natives of this part of Central America, though the manufacture of hats is not an important industry.

Acrocomia vinifera Oerst. The coyol palm. The fiber obtained from this palm is not much used at the present day. The fruit is edible and occasionally seen in the markets. The plant is one of the characteristic indigenous species of the region.

PLANTS USED FOR COLORING AND DYEING

Bixa orellana L. *Achiote*, known in English as *arnotto*. A small tree occasionally seen in this region. The outer covering of the seed is fleshy and yields a brick-red coloring matter much used to color foodstuffs and beverages, and occasionally for other purposes.

Jacobinia tinctoria (Oerst.) Hemsl. *Saca-tinte* (Nahuatl, *mo-huitli*). A small shrub yielding a blue dye similar to indigo. Fairly common in gardens.

Due to the widespread use of aniline dyes throughout Central America at the present day, it is difficult to determine many of the plants which yielded dyes in ancient times. Doubtless there were a number of species utilized by the ancient Maya whose value is not known to most Central Americans of the present day.

FENCE AND HEDGE PLANTS

Bromelia pinguin L. The *piñuela* or *piñuela de motate*. A plant allied to the pineapple and resembling it in growth. It is

larger and coarser, however, with the leaves more coarsely serrate. It is commonly planted to form impenetrable hedges, and the small acid fruits which it produces are occasionally used to make refreshing drinks.

Erythrina corallodendron L. *Flor de pito*, or coral tree. A small tree, easily propagated from cuttings, which is planted for hedges and produces edible flower buds as well. These buds, which are picked when quite young, are boiled and eaten as a vegetable. The seeds of this plant are used by the *brujos*, or witch doctors, of Guatemala in divining. Probably cultivated in ancient times.

Gliricidia maculata HBK. *Madre de cacao*. A small tree producing handsome pink flowers in the greatest profusion. It grows readily from cuttings, and for this reason, probably, is commonly planted in fences. It is grown for shade in cacao plantations, a use which seems to have come down from the earliest times.

Jatropha curcas L. *Piñon* or physic nut. A plant of tropical American origin, not as common at Copan as the preceding. Its oily seeds are a drastic purgative, little used. Usually found in hedges or fence rows.

MISCELLANEOUS USEFUL PLANTS

Nicotiana tabacum L. *Tabaco* in Spanish (Nahuatl, yetl or picietl), tobacco in English. One of the principal crops of present-day Copan. The use of this plant as a narcotic was common among the ancient inhabitants of tropical America.

Crescentia cujete L. The *jicara* or calabash (Nahuatl, quauhtecomatl, "tree gourd"). This is one of the most useful trees of the region, producing receptacles which are found in every household. Three varieties are known at Copan, a small, round-fruited one called *morro*; a larger, elongated one called *jicara*, and a large oblate one known as *guacal*. The tree is indigenous in this region and very abundant. Undoubtedly it was as useful to the ancient Maya as it is to the Central Americans of today.

Curcubita lagenaria L. The *tecomate*, or gourd (Nahuatl, tecomatl). Like the *jicara*, this plant produces many useful receptacles and is seen in nearly every garden. The gourd is one of the very

few useful plants which are known to have been distributed throughout both hemispheres before the discovery of America.

Ricinus communis L. The *higuerillo* or castor bean. Very abundant along the river, especially in the vicinity of the ruins. The oil obtained from its seeds is useful in several ways.

Pinus tenuifolia Benth. The *ocote* pine (Nahuatl, *ocotl*, "pitch"). One of the characteristic trees of the region, growing in great abundance on all the hillsides. Its wood, which is saturated with resin, is termed *ocote* and is used to kindle fires and for illuminating. It is the only material used for illumination by the poorer natives. It must have been a very useful species to the ancient Maya.

Protium Copal Engl. Copal. A small tree common on the hillsides. A gum is obtained from incisions in the trunk which is burned as incense, and plays an important part in the religious ceremonies of the Indians. Most probably it was used in the same way by the ancient Maya. There are several other plants in Central America which furnish resins used in the same manner.

Castilla sp. *Hule* or rubber tree (Nahuatl, *olli*, or *uli*). Wild in the vicinity of Copan, but not cultivated commercially. Probably its latex was utilized by the ancients.

Saccharum officinarum L. *Caña de azúcar*, or sugar cane. A plant of Asiatic origin, introduced since the Conquest and now an important crop in Copan.

UNITED STATES DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C.

MOUNTAIN HAUNTS OF THE COASTAL ALGONQUIAN¹

By MAX SCHRABISCH

IT was in 1899 that the writer began the study of prehistoric rock shelters, that is, natural rock formations anciently resorted to by the Redman because of the protection they afforded from the elements. A thorough and systematic search continued for the past twenty years led to the discovery of no fewer than one hundred and twenty-nine of these interesting sites, scattered over an area of approximately 5,000 square miles. Owing to the Indian's former presence under these rocks each of them yielded remains of his handiwork or other refuse attributable to him, often in great abundance and of such a nature as to throw much light upon his mode of life, while sojourning under their hospitable roof.

Strange to say, all these primitive abiding places had evidently remained undisturbed since the Redman's final departure, excepting a few cases, where some modern junk was found on the surface beneath the sheltering roof, left behind, no doubt, by some modern hunters or timbermen. As a consequence, the culture débris accumulated under the rocks was always intact or in its original condition and all the archaeological objects embedded therein were lying in situ, viz., in the very place where he had dropped them.

The fact that this class of sites had wholly escaped the attention of curio hunters who, it would seem, never suspected their true significance, could not but be gratifying to the investigator whose aim is not merely the collecting of relics but rather the gleaning of such information as may be legitimately derived both from the assemblage of artifacts and their relative position in the subsoil. If correctly interpreted, the data thus observed may, indeed, serve to elucidate many a problem involved in the study of the American Indian.

¹ Read by title at the Baltimore meeting of the Anthropological Association, Dec., 1918.

DISTRIBUTION OF SITES

The area explored by the writer comprises most of the territory extending southward from the Catskills in New York state to a line across New Jersey, from Lambertville on Delaware river to Perth Amboy on Raritan bay, and is bounded on the west by the Delaware and on the east by Hudson river, thus including a large portion of southeastern New York and all of northern Jersey.

In the State of New York fifty-one rock stations have so far been noted, namely, ten in Rockland county, twelve in Orange county, and twenty-nine in Ulster county. Discarding modern geographical nomenclature and considering only the physiographic features amid which they occur, their distribution is as follows: Four in the Catskills, twenty-five in the Shawangunk range, and twenty-two in the Ramapo mountains. In other words, all the prehistoric rock sites in New York state known to the writer are situated within the mountains or at their outskirts.

In New Jersey these sites are distributed in a somewhat similar manner for of a total of seventy-eight discovered about two thirds lie in mountainous districts. In point of fact, there is scarcely a range of hills in northern New Jersey but is remarkable for the occurrence within it of one or several aboriginal rock shelters. This is particularly true of the New Jersey highlands and to a lesser degree of the Kittatinnies, the Watchung, the Jenny Jump, and the Musconetcong mountains. However, as already indicated, a considerable number of these stations lie at some distance from the hills, but wherever this is the case the contour of the land or the natural features surrounding them are invariably quite rough, being characterized by ledges and rocky ridges.

If in a river valley, sites of this description were apparently in great demand, and this for obvious reasons. For as they lay along the more important prehistoric routes of travel, which commonly followed the river courses, they could not only be easily approached, but the proximity of a stream well stocked with fish was bound to make them desirable for habitation, since fish was largely depended upon for food, it forming an important part of the Indian's diet.

Nor does it appear that the aborigine was at all fastidious, when about to make use of a covert thus situated, as he would not infrequently avail himself of one that was quite small and otherwise uncomfortable, provided, of course, that he did not have much choice.

It is clear, therefore, that easy access or favorable situation was a factor of some weight with the savage in influencing his selection of a natural shelter, however mean. On the other hand, there is many a rock-house of good configuration that had been spurned seemingly for no other reason than its remoteness from the beaten path or else, perhaps, on account of the propinquity of other shelters that, for some cause or other, were more to his liking, in which case he generally evinced, it seems, a considerable degree of native shrewdness choosing, without doubt, one which was in every sense best suited for his purpose.

A careful survey of the river valleys of northern New Jersey resulted in the identification of some eighteen rock stations, most of them of small dimensions and rather unattractive from a structural viewpoint, their redeeming feature having been favorable position. Only six of these, however, are on or close to the bank of the main stream, the others lying on some tributary at some distance from the former.

On Delaware river four sites were found, the most important of which is at Delaware Water Gap, above Dunnfield creek, at the foot of Blockade mountain. Along Paulinskill valley there are twelve; one is on Pequest river, and another on the bank of the Hudson, at the base of the Palisades about opposite Yonkers.

Classifying all the northern New Jersey rock stations according to counties, Warren county ranks first with twenty-nine; in Sussex county twenty-five were located; in Morris eight; in Passaic eight; in Bergen four; in Essex two and in Hunterdon two. This shows that the majority of these sites are in northwestern New Jersey, where the hills are highest and the topography more rugged than elsewhere in the State.

PRINCIPAL TYPES

As may be readily imagined, rock shelters exhibit an endless variety of structure and this to such an extent that, strictly speaking, each is in a class by itself. They are subjected to the operation of the law of evolution which holds true for the crust of the globe just as it does for the myriad tribes of plants and animals that clothe and people it.

The great geologic forces are incessantly at work shaping and reshaping, tearing down and building up the earth's crust. Nothing, not even the solid framework of the mountains, can forever withstand the assaults and destructive processes of subaërial denudation consisting in the mechanical action of heat and frost, much less the chemical effects of water, holding carbonic acid in solution. Erosive and corrosive agencies are constantly busy disintegrating the face of the earth, wearing down the lofty peaks, nay, reducing, in the course of ages, whole mountain ranges to their very foundation, that is, planing them down to a flat expanse.

Amid this amazing diversity of structure assumed by rock shelters under the operation of epigene or superficial agents of change, *i. e.*, the atmosphere, terrestrial water, and ice, four general types may, nevertheless, be distinguished. Most prevalent is that of the sheltering rock or overhanging ledge, a structure due mostly to the under-cutting of streams, by which process the lower portion of the cliff is gradually worn away, leaving a roof-shaped rock-mass on top. The shelter, thus formed, could be utilized as a place of abode as it yielded more or less protection from wind and rain. A close study of the area under review has demonstrated that most of the prehistoric rock stations located therein are of this kind.

Nor was it only on this continent that coverts like this, furnished by nature and other types presently to be dealt with, were used. In all parts of the world, but notably in central Europe, late researches have made it clear that our ancestors, the men of the Old Stone age, were markedly troglodytic in their habits, inasmuch as they were wont to avail themselves of natural shelters, wherever found. Among famous European rock shelters, probably dating back to the Third Interglacial period about 100,000 years ago, we may mention

those of the Kesslerloch and Schweitzersbild in south Germany and Switzerland, respectively, the excavation of which within recent years has yielded a profusion of articles of human manufacture, partly belonging to the Moustérien stage of culture.

Cavities serviceable for habitation have been found at the base of or under huge erratics, particularly when they happened to be top-heavy. Such hollows, if of ample size, often contain remains of the Redman's industry bespeaking his quondam presence thereabouts. Conspicuous among this class of rock-stations are the sites of Bear Rock, Morris county, N. J., and of Stony Point, Rockland county, N. Y.

Shelters of archaeological moment occur sporadically at the foot of rock masses that become detached from a parent cliff near by. An example of this type is furnished by a station, about a mile northwest of Lake Minnewaska, on Shawangunk mountain, Ulster county, N. Y.

Another type of natural covert, not infrequently met with, partakes somewhat of the nature of a cave. It owes its origin to detritus or an accumulation of rocks piled up one above another in such a manner as to form a cavity underneath. It is usually found near the base of a high crag or escarpment, from which the detritus was derived by the breaking up of the latter under the influence of atmospheric agencies, that are ceaselessly at work disrupting and disintegrating the faces of cliffs and exposed rock masses. Most commonly, rocks are split by water freezing in the interstitial pores and forcing the grains and particles asunder. In consequence, rock-falls occur from the face of the cliffs which pile up along their base and which may, if the detached slices are large, eventually give rise to a cavern. This class of shelters is typically represented by the stations of Federal Hill, near Pompton junction, Passaic county, N. J.; Mount Buchanan, near Lake Mombasha, Orange county, N. Y.; Fox Hollow and Little Pond, on Shawangunk mountain, near Saint Josen, Ulster county, N. Y.

One more type, *viz.*, that of the cave proper, remains yet to be considered. Although a few caves were located in southeastern New York, their exploration was usually attended with negative

results, but one of these testifying to ancient Indian occupation, viz., Murderer's cave, near Johnsonburg, Rockland county. In the limestone region of Sussex and Warren counties, N. J., however, no fewer than four of these interesting sites came to the notice of the investigator, each of them of prehistoric significance.

It is well known that in lands composed chiefly of limestone, corrosion proceeds more rapidly than in rocks of other kinds. This is due to the chemical action of water. Being charged with carbonic acid derived from the atmosphere and decaying vegetable and animal matter, with which soil is more or less impregnated, it works through interstitial fissures and pores, dissolves the limestone and removes it as carbonate of lime, thus giving rise to underground channels and caverns.

Paramount in point of remains among the four limestone stations was Owen's cave, on Wallkill river, Sussex county; the others were Berry's Cove cave, south of Sussex, Sussex county; the Devil's Kitchen, near Blairstown, and the Wolf's den, near Southtown, the latter two in Warren county. A fifth one was discovered at the foot of Garret mountain, underneath a basaltic block of colossal size, within the city limits of Paterson, N. J.

While all these are small, the writer was told of at least one limestone cavern of large dimensions, namely, Hartmann's cave, some six miles west of Delaware river, near Stroudsburg, Pa. Visiting it a few years since, he learned that it had been excavated with most gratifying results some thirty years ago by Professor Holmes, of Washington, D. C., who secured more than a thousand specimens of primitive workmanship and of many different types. Hence there can be no doubt that this station was one of the headquarters of the Lenape, once ranging over all this territory.

INFLUENCE OF LITHOLOGICAL FEATURES IN DETERMINING ROCK-FORMATIONS

The rock sites of the region in question are composed of many different minerals, and it does not require much observation to be impressed with the conviction that there exists a correlation between the relative frequency of these sites and the materials enter-

ing into their composition. In short, the occurrence of this peculiar formation is largely dependent upon the character and mineral structure of rocks.

Enough has already been said to make us presume that limestone would be the rock most favorable to the formation of every kind of natural covert, suitable for habitation. And so it is. Nowhere in all this broad extent of country were rock shelters more plentiful than among the derivative limestones of Sussex and Warren counties of northwestern New Jersey. Here, more than one hundred such structures were noted, fifty-four of which bore evidence of aboriginal occupation.

In the second place come the metamorphic rocks, *i. e.*, the gneisses and granites of the Ramapo range and adjoining hills. Among fifty-odd shelters observed there, no fewer than thirty-two were found to have been occupied.

As regards the upper Silurian limestones (Shawangunk grit) of Shawangunk mountain, eligible sites were met with on almost every square mile of land investigated. In some of the gorges trenching this range they occurred in rows along the base of the precipices and cliffs that overlook the streams tributary to Rondout creek. Within a tract, forty square miles in extent or thereabouts, stretching west of Lakes Mohonk and Minnewaska towards Rondout creek, some fifty good rock shelters were located, twenty-five of which gave evidence of ancient occupancy.

Considering that less than one quarter of the territory of this range has been surveyed and assuming the ratio of twenty-five rock abodes to each forty square miles to prevail throughout its remaining sections, we may estimate their total number within this district, other things being equal, at not less than one hundred, a number which would greatly exceed the proportion per square mile observed in northern New Jersey.

Among the basaltic traps and other rocks of volcanic origin within the county of Passaic and adjacent districts there were about a dozen sites, nine of which are of archaeological significance.

Four rock stations were noted in the Devonian conglomerates or old red sandstones of the Catskill mountains within an area of

some fifteen square miles, near Woodstock, Ulster county, N. Y. There can be little doubt that additional sites dot all parts of this range.

A thorough search along the ravines and outcrops of sandstone of northern New Jersey and Rockland county, N. Y., revealed the existence of but three stations containing the telltale marks of Indian activities. Two of these are in Medina sandstone, north of Dunnfield, at the Delaware Water gap, the other is in a gully, near Tallmans, Rockland county, N. Y.

Lastly, there were two sites in slate ridges in Warren county, N. J. Shelters consisting of shale or argillaceous rocks were invariably devoid of traces of a prehistoric character.

CONDITIONS GOVERNING ROCK STATIONS

The number of Indians once roaming over this region appears to have been egregiously small when contrasted with that of the whites now inhabiting it. Each of their subtribes or divisions had their well-defined precincts jealously guarded against the encroachments of neighbors, within the confines of which they had to eke out a precarious existence mostly by hunting and fishing. It may readily be assumed, therefore, that each individual Indian possessed a most intimate knowledge of his particular section, of its hills and dales, its streams and lakes, and all the prominent features of the landscape.

Their main settlements were in the river valleys or in the more open country, where they could plant maize, beans and a few other vegetables to supplement their meat diet. At certain seasons, but most generally in autumn, neighboring tribes would join in hunting trips to the mountains, which were a kind of game preserve, held in common by a group of tribes, and where they would stalk the deer and secure other quarry, valued for food and peltry. With nothing escaping their keen senses, they could not fail to acquire, moreover, a thorough familiarity with those rugged regions that at their time, were all but impenetrable, a pathless wilderness, the home of panther and bear. Thus, they came to know the runways of deer, the haunts of wild beasts, also where to find water and where to camp after the chase.

In such solitudes, far away from their villages in the valleys, it was but natural that they should avail themselves of some of the sheltering arches of rock that are of such common occurrence in many of our mountain chains. Thus it was that they would resort to rock shelters, the whereabouts of which they well knew. In making their choice, they did not proceed indiscriminately, however, but selected those that complied best with their requirements.

In the first place, a water supply had to be in the immediate vicinity. Water appears, in truth, to have been a factor of prime importance in the choice of a rock abode, but it did evidently not matter much whether such supply was furnished by a spring, a brook, a lake, or even a swamp. This failing, the best shelter would be passed by as unfit for occupation, save, perhaps, some roving Indian who might squat down in it to rest an hour or two. The observation just made has been verified in every instance, for wherever good shelters were noticed, which subsequent examination proved to be destitute of any and all traces of ancient occupation, the main reason for such avoidance was always, it seems, the absence of water.

From the evidence extant we may further infer that, apart from water, roof and floor were the only other factors determining the desirability of a site. If the former did not jut out far enough, say, less than four feet, or if it was so low as to compel crouching, the shelter was likely to be avoided. As a rule, the most favored sites were those having the most extensive roof projection. In some cases this amounted to as much as twenty-five feet, while in archaeologically inferior shelters it dwindled down to about four feet, as stated above.

Again, those sites were given preference that had a dirt floor, quite level and not mixed with too many stones. A plain rock floor or one obstructed by protuberant boulders, buried deeply in the subsoil would, it appears, constitute a serious drawback to prospective occupation. Although the remarks just made have reference to overhanging rocks or rock shelters proper, they apply equally to the other types of coverts previously described.

A factor of minor importance was the exposure or situation of

the site in regard to the points of the compass. On the whole predilection was shown for those shelters which had a more or less southerly exposure and which, therefore, received a more generous amount of sunlight and warmth. Occasionally, however, this rule was found departed from, doubtless, on account of certain other features compensating for this disadvantage.

If we try to picture to ourselves the condition of this region at the time "when wild through woods the noble savage ran," a region covered with jungles or primeval forests, choked with windfalls and an all but impenetrable growth of luxuriant underbrush, reaching in one vast expanse from the Atlantic to the great plains, with mountain fastnesses, trackless and impassable, save for a few narrow trails used by man and beast alike, we may well wonder how the Redskin could move about as freely as he did, how he managed to penetrate to certain sections that, even now, are well nigh inaccessible. Yet to him nothing was inaccessible; he visited every point, knew every landmark, every rock and left his mark wheresoever he went. Consequently, his traces are dug up under rock shelters that are even at the present time quite difficult of approach, situated, as they are, in the heart of the mountains, many miles from the river valleys and the nearest human habitations, both his own, that are no more, and those of the Whites. As mere remoteness did not detract from any site, if otherwise suitable, we need not wonder that rockhouses of the first magnitude with respect to remains have been found in out-of-the-way places.

THE MOST IMPORTANT ROCK STATIONS

The bulk of the one hundred and twenty-nine sites noted lie in the mountains, the others among the foothills or in the river valleys. No less than fourteen of these stations were of considerable archaeological significance by reason of the multiplicity and variety of the remains left behind.

The New York sites were scattered over three mountain ranges. In the Catskills, one at the southern slope of Overlook mountain, north of Woodstock; in the Shawangunk mountains, one upon the banks of Peters kill, near Saint Josen, and in the Ramapo range, the

Golf Hill station, three miles north of Southfields; Man of War rock, at Tuxedo; Horstable rock, two miles east of Tuxedo, and the Stony Point rockhouse, four miles west of the Hudson river.

In the limestone district of Sussex county, northwestern New Jersey, there occurred four sites, *viz.*, Bevans rockhouse, a mile east of Delaware river; Owen's cave, on Wallkill river; the Gum Hollow shelter, southeast of Swartswood lake, and Moody's rock, on the Muckshaw swamp, two miles south of Newton.

Then there is a site at Delaware Water Gap; another one at Bear rock, four miles north of Boonton; one a mile west of Pompton Plains, the last two in Morris county, and one at Upper Preakness, a mile south of Franklin lake, Passaic county.

CULTURE REMAINS UNDER ROCKS

In no case, as stated elsewhere, had the original conditions been tampered with. The superficial débris, that had accumulated within the shelters since Indian times, consisted chiefly of dead leaves and rock rubble, associated occasionally with some modern waste, such as pieces of rusty iron, glass and broken earthenware. Beneath it, that is, on the original surface, there often lay chips of flint and of other material, bones, potsherds, and even arrowpoints. The culture deposits enclosing the bulk of the remains at varying depths below the surface, were frequently of blackish soil due to an admixture of charcoal and ashes. The latter were suggestive of ancient fireplaces, traces of which could often be discerned in the shape of squares, rudely built of rocks, commonly along the inner wall of the shelter, which then exhibited smoke stains and the effects of the action of fire. The hearths were sometimes filled with charred bones, fire-cracked pebbles, and other refuse.

Some of the stations were remarkable for the immense quantity of bones embedded both in the subsoil under the rock and in special pits near its center or sides, where they formed veritable ossuaries. Although most of the bones were cervine, *i. e.*, belonging to deer, those of rabbit, skunk, opossum, muskrat, raccoon, bear, wild turkey, and other animals were not lacking. Doubtless, such places were the scene of much feasting indulged in after the chase.

The stations of Overlook mountain, Golf hill, Horsestable rock, and Stony Point may be adduced as typical of this class.

In shelters lying near lakes and streams large quantities of fresh water mussels called *Unio fluviatilis* have been encountered, a fact showing that the aborigine was quite fond of this fare. At the Stony Point site these were found associated with numerous oyster shells, a bivalve which could be obtained at places not many miles off. As a curiosity we may mention that a solitary oyster shell was dug up in the Indian deposit two feet below the surface at Owen's cave, fully seventy miles away from the nearest supply.

The types of implements most frequently met with in the débris are arrowpoints, scrapers or fleshers, pitted stone hammers, spear-heads, and fragments of pottery. In one of the Towaco shelters, Essex county, N. J., the writer secured a gorget or pendant of slaty material, which was perforated at both ends. Singularly enough, the rarer types of artifacts, such as tomahawks, stone hatchets, celts, and pipes, were absent at all the sites under discussion, excepting the Overlook mountain station which yielded a broken celt and a fragmentary pipe made of steatite.

Potsherds, *viz.*, pieces of pottery, plain or decorated and invariably of Algonquian origin and design, occurred mostly in the upper strata of the accumulated culture deposits. The fact that the lower layers were usually devoid of ceramic ware would seem to indicate a stage of culture when the art of pottery making was yet unknown in these parts. There is, indeed, good ground for assuming that this art was of comparatively late introduction among the tribes of the Atlantic seaboard. But whether the conditions thus observed hint at several horizons of culture must at the present state of our knowledge be considered an open question.

Not a few sites contained no pottery whatever, among them the great station of Horsestable rock. This may be interpreted as meaning that they were never visited by females, for according to Indian ethics it was their duty to carry pots and other household utensils, it being considered beneath the dignity of a warrior to encumber himself with such articles. As conversely some shelters yielded nothing but pottery, we may be justified in assuming that

they were resorted to by women only, and that at certain periods in common with the usages observed by primitive peoples the world over. Sites of this class have been designated as squaw shelters.

Some stations appear to have been used as workshops, if we are to judge from the profusion of flakes, chips and unfinished specimens left behind. Examples of this kind are furnished by most all the important sites as well as by a few smaller ones, notably the station at Huckleberry swamp, on Shawangunk mountain, near Saint Josen, N. Y. Others, again, were little chipping sites to which the red huntsman would repair to fashion a point or two. On Shawangunk mountain, in particular, many such places have been noted.

There are several shelters that bear witness to prolonged occupation, while others seem to have been visited periodically or temporarily, but that for many centuries, either by hunters alone or by whole families, compelled by the exigencies of their existence to shift their quarters.

THE ANCIENT OCCUPANTS

It is certain that the occupants of the rock stations occurring in this wide tract of country were of Algonquian stock, and it is equally certain that they were Lenape, for according to Heckewelder, our foremost authority, the settlements of the Lenape extended from the Mohicannituck (Hudson river) to beyond the Potomac; and from the headwaters of the great rivers Susquehanna and Delaware to the Atlantic ocean.

On the other hand, it is questionable whether all the sites within this region had been tenanted by the Munsee alone, *i.e.*, the northernmost of the three divisions of the Lenape, or whether the Unami, adjoining them southward, frequented some of them, that is, those which lie in New Jersey, south of the Ramapo mountains.

If we follow Heckewelder's lead, all the sites here treated of were anciently resorted to by the Munsee only, for he says that they extended their settlements from the Minnesink, a place named after them, where they had their council seat and fire, quite up to the Hudson on the east, and to the west or southwest far beyond

the Susquehanna; and that their northern boundaries were supposed originally to be the Hudson and the great rivers Susquehanna and Delaware, and their southern boundaries that ridge of hills known in New Jersey by the name of Musconecon, and in Pennsylvania by those of Lehigh and Cohmewag.

According to Ruttenber, however, the Munsee territory extended from the Catskill mountains to the headwaters of the Delaware and Susquehanna, and was bounded on the east by the Hudson; their council fire was lighted at Minnisink, about ten miles south of Maghackemek, N. Y.; and the Unami joined the Munsee on the south, somewhere about Stony Point.

Ruttenber gives the various subdivisions of the Munsee along the Hudson and their location: the Waoroneck about Dans-kammer; the Warranawonkong from Dans-kammer to Saugerties; the Mamekoting west of Shawangunk mountain; the Wawarsink in the district which still bears their name; the Katskills north of Saugerties.

These then were, it would seem, the names of the tribes that once made use of the rock haunts occurring in the Catskill and Shawangunk mountains.

PATERSON,
NEW JERSEY.

THE SERPENT MOUND OF ADAMS COUNTY, OHIO

By CHARLES C. WILLOUGHBY

THE Serpent Mound of Adams county, Ohio, has always been a source of interest and speculation among archaeologists.

With the exception of the Dighton Rock inscription in Massachusetts, perhaps no example of the handiwork of the pre-historic Indians of the north has been subject to more discussion or has given rise to more fanciful interpretations.

The site chosen for this great effigy was probably determined largely by superstitions which may have been connected with the headland upon which it was built. This headland, rising to a height of about 100 feet, gradually narrows and terminates in a cliff, bearing a certain resemblance to the head of a reptile, as shown by the accompanying photographs (plate x, *a*, *c*). The contour of the head, the muzzle, the eye, and mouth are clearly indicated. The Indians may also have seen in the promontory extending backward from the head along the shore of Bush creek, the body of the serpent deity. Natural formations, peculiarly shaped stones, concretions, and other objects resembling human or animal forms or any of their parts, were generally supposed to possess supernatural powers, and in this instance, with a little imagination, one can easily approach the Indian's point of view. Professor Holmes has called attention to this resemblance in the following words:

Having the idea of a great serpent in the mind, one is at once struck with the remarkable contour of the bluff, and especially of the exposure of rock, which readily assumes the appearance of a colossal reptile lifting its front from the bed of the stream. The head is the point of rock, the dark lip-like edge is the muzzle, the light-colored under side is the white neck, the caves are the eyes, and the projecting masses to the right are the protruding coils of the body. The varying effects of light must greatly increase the vividness of the impressions, and nothing would be more natural than that the Sylvan prophet . . . should recognize this likeness and should at once regard the promontory as a great manitou. His people would

be led to regard it as such and the celebration of feasts upon the point would readily follow.¹

The relation of the Serpent Mound to this promontory is clearly shown in the photograph of our model (plate x, a).

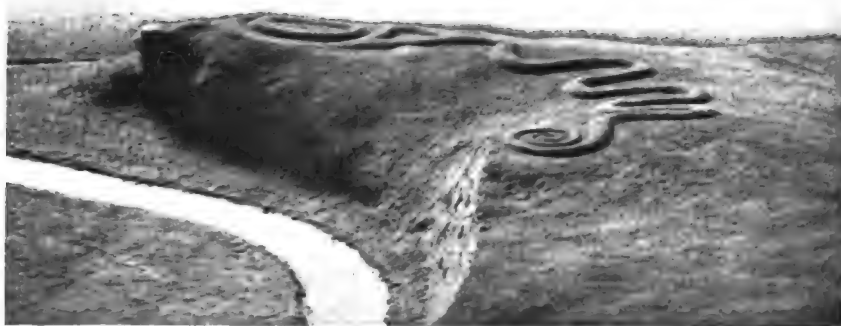
Squier and Davis² published the first plan of the Serpent Mound in 1848 (plate xi, a). This they claim was from an "accurate survey" made by them in 1846. It is very apparent however that the plan was prepared from a rough field sketch with little attempt at accuracy, either in dimensions or delineation. Their measurements are often much in excess of the actual dimensions, and may have been estimated by pacing. The following table of measurements by different investigators, of the length and breadth of the oval forming a part of the serpent head will serve as an example:

	Date.	Length of Oval.	Width of Oval.
Squier and Davis.....	1846	160 feet	80 feet
J. P. McLean.....	1884	113 "	50 "
F. W. Putnam.....	1887	120 "	60 "
C. C. Willoughby.....	1918	119 "	59 "

On their plan the oval is represented much too large in proportion to the rest of the effigy and is shown extended forward nearly to the edge of the cliff and surrounded by a trench. That portion of the effigy between the front end of the oval and the point of the cliff, which is 69 feet in length and forms the front part of the serpent's head, is not shown. Their cross-section through the oval, however, is of considerable interest as it indicates that the edges of the promontory upon which the oval stands may have been slightly higher than at present. This portion of the promontory was undoubtedly graded and its shape modified on either side of the oval to form the outline of the serpent's head. Squier and Davis also note that this part of the hill was "artificially cut." Although their cross-section does not show it, these writers say that the ground within the oval was slightly elevated, as it is at the present time. The height of the oval embankment they give as four feet, whereas

¹ W. H. Holmes, *Science*, vol. VIII, 1886, p. 627.

² Squier and Davis, *Ancient Monuments of the Mississippi Valley*, *Smithsonian Contributions to Knowledge*, vol. I, plate xxxv.



A



B



C

THE SERPENT MOUND OF ADAMS COUNTY, OHIO

A, Model of the Serpent Mound; B, View showing neck, base of head, and projection at the right, taken at the time of the restoration of the earthwork in 1887; C, A part of cliff resembling a colossal head, at the end of promontory in front of Serpent Mound.

McLean's measurement was 2'6". The present height is 3'6" from the outer side and 2'8" from the inner side.

Recognizing as parts of the effigy only those portions shown in their plan, Squier and Davis saw in these embankments a serpent with its mouth "open wide as if in the act of swallowing or ejecting an oval figure." The head and open mouth being that portion at the rear of the oval considered by the present writer as representing only the base of the head, it is not surprising that these pioneer investigators should see the analogy between the figure thus interpreted and certain old-world symbols.

McLean in 1885 appears to have been the first to recognize the forward embankment as a part of the effigy, and in that year published a plan and description of the serpent which is much more accurate than that of Squier and Davis. This is reproduced on plate XI, *b*. Following these authors, however, in so far as the main portion of the effigy is concerned, he also saw in the earthwork a serpent with open jaws in the act of swallowing an egg. In the additional forward embankment, he traced the outline of a frog in the act of leaping, as will be seen by the following quotation:

A serpent is on the mainland, resting in a coil, hid by a slight depression, and protected by declivities at two points of the compass. While in this position it beholds a frog sitting near the point of land beyond. The serpent unfolds itself glides along the edge of the mainland until it reaches the tongue or spur, drops its head into the declivity, and just as it reaches the highest point beyond, strikes at the frog. But the wily batrachian becomes alarmed, leaps in time, and emits an egg which in turn is injected into the mouth of the serpent.¹

In 1886 Professor W. H. Holmes² published an account of the Serpent Effigy together with a carefully made sketch plan (plate XII, *a*). This agrees very closely with McLean's drawing made the previous year. The forward portion of the effigy, however, not recognized by Squier and Davis or by Professor Putnam, but shown somewhat distorted in McLean's plan as a "frog," is much more carefully drawn and agrees in all essential particulars with the plan and measurements of the present writer. The two lateral pro-

¹ J. P. McLean, *American Antiquarian*, 1885, p. 46.

² W. H. Holmes, *Science*, vol. VIII, 1886, p. 626.

jections at the base of the head of the serpent, however, are not shown. He refers to them as follows:

The minor appended features recognized by Squier and Davis and by some recent visitors, are too obscure to be identified with absolute certainty and I consider it unsafe to introduce them with my illustration.

These appear at the present time as in fig. 15, and although their original outlines are difficult to determine, their junction with the base of the head is clearly shown. These appendages will be discussed more fully later.

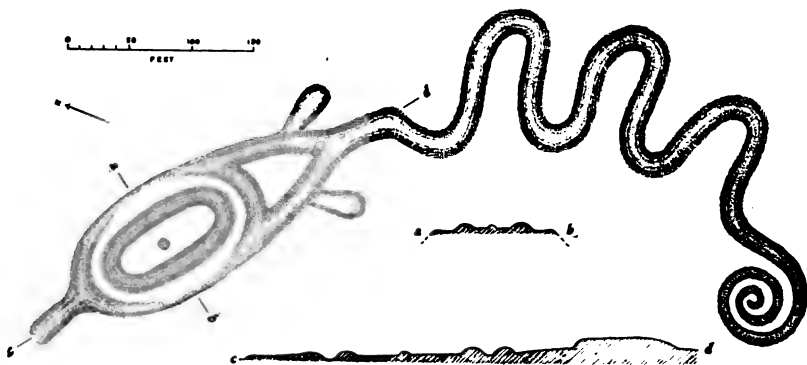


FIG. 15. — Plan and cross-sections of Serpent Mound, Adams Co., Ohio.
C. C. Willoughby, 1918.

Professor Holmes, referring to the enlarged portion (the head) of the effigy says:

Most of the attempts to throw light upon the most extraordinary features of the work have been made through the medium of oriental philosophy; but it is manifestly wrong to go thus out of our way to seek a symbolism for the oval enclosure, as do Squier and Davis, who liken it to the symbolic egg of old-world philosophy; nor need we make a serious effort to combat the idea that the terminal portion is a frog, as suggested by McLean. It would not seem unreasonable that the former feature should be simply the eye of the effigy. . . .

He also refers to the possibility of the oval representing the heart of the reptile. In a recent letter to the writer, however, he says:

I am decidedly inclined to the view that the oval, instead of representing the heart of the serpent, represents the head and the eye.

Professor F. W. Putnam became deeply interested in the Serpent Mound, and in 1887 through his instrumentality the promontory upon which the earthwork is situated, together with a portion of the surrounding land, was purchased and became the property of the Peabody Museum of Harvard University.

In that year Professor Putnam began his exploration and restoration of the effigy and neighboring mound and graves. The oval, "jaws," and body of the Serpent were measured, and the earth along the edges thrown upon the embankments, which he outlined upon both sides by a gravel walk. This resulted in raising the embankments in some places probably at least a foot and making the base measurement somewhat narrower. A critical study of the measurement previous to the restoration and of the earthworks themselves, seems to show that the original form of the effigy was not materially altered. Following Squier and Davis, however, Professor Putnam saw in the earthwork only the oval and a serpent with open jaws. If the front portion of the effigy recognized by McLean, Holmes, and the present writer, and the projections at the base of the head had also been restored by him, they would be relatively higher and more conspicuous than they appear at present.

After speaking of the prominence of the serpent in the religious faiths of the American Indians, Professor Putnam says:¹

Will it be forcing fact to argue . . . that in the oval embankment, with its central pile of burnt stones, in combination with the Serpent, we have the three symbols everywhere regarded in the Old World as emblems of those primitive faiths?

With the view of studying at first hand the special features of the effigy, the writer visited the Serpent Mound in June, 1918, in company with Mr. W. C. Mills of the Ohio Archaeological Society, who now has custody of the Serpent Mound park, and made a careful survey of that portion in front of the first bend of the body near the neck, and also took measurements of various parts of the body to verify those made by Professor Putnam in 1887. Accepting Professor Putnam's figures for the length of the effigy from the western end of the oval to the tip of the tail, measuring along the convolutions of the body as 1,348 feet, the total length of the Serpent

¹ F. W. Putnam, *The Serpent-Mound of Ohio*, *Century Magazine*, 1890, p. 871.

from the tip of its tongue or snout to the end of its tail is approximately 1,417 feet. The greatest width of the body at present is 24 feet near its junction with the head, and for several hundred feet back of this point it averages 22 feet in width and about 4 feet in height, then gradually tapers to the end of the tail. As already noted, before its restoration the body was somewhat broader and lower. This will be seen by comparing the photograph taken before its restoration, plate XII, *b*, with the recent picture, *c*, of the same plate. These are views in opposite directions.

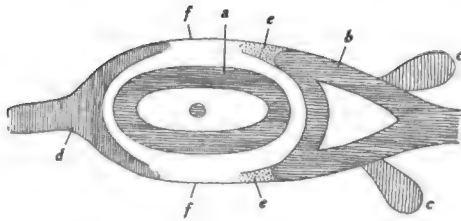
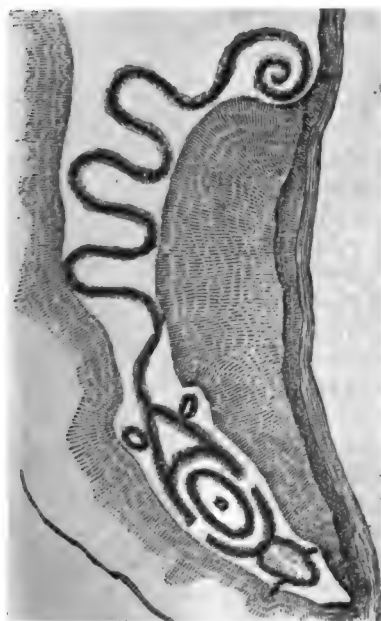


FIG. 16.—Head of Serpent Mound. The parts recognized by different investigators are as follows: Squier and Davis, *a, b, c*; McLean, *a, b, c, d, e*; Holmes, *a, b, d, e*; Putnam, *a, b*; Cowen, *a, b*; Willoughby, *a, b, c, d, e, f*.

For the sake of convenience the effigy may be divided into two sections, the first of which includes that portion back of the first turn at the neck, and comprises the folds of the body and the coiled extremity. There seems to be no disagreement among

archaeologists concerning the interpretation of this portion. The second section consists of the remaining parts of the effigy, which undoubtedly represent the conventionalized head of the serpent lying flat upon the point of land, parts of which have been graded to form a portion of the outline of the head. Figure 16 shows this as it now appears; that portion with the horizontal shading is the part interpreted by Professor Putnam and others as representing an oval in front of the open jaws of the serpent head, which is turned upon one side. This portion was restored by Professor Putnam by throwing upon the embankments the washed earth and accumulated mould along their edges.

A careful examination of the ground, *e, e*, in this figure, near the ends of the so-called jaws, shows that these originally projected several feet beyond their present limits. This is indicated by various stones embedded in the soil and the character of the earth at these points; the space covered is shown by the dotted area in



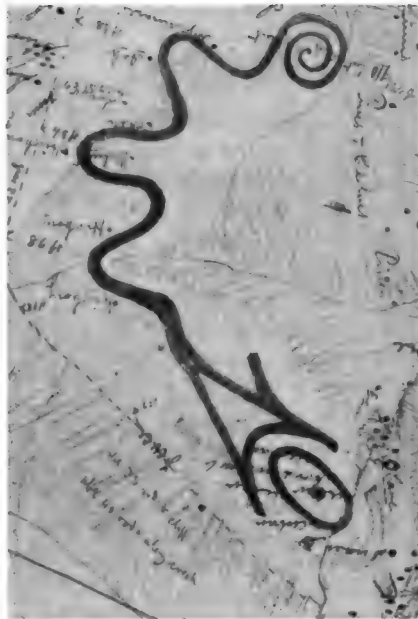
B



D



A



C

THE SERPENT MOUND OF ADAMS COUNTY, OHIO

A, Plan by Squier and Davis, 1848; B, Plan by J. P. McLean, 1885; C, Sketch plan, Peabody Museum, 1887; D, Plan by C. Cowen, 1901.

the diagram. Moreover, in a letter to the writer, Dr. C. L. Metz of Madisonville, Ohio, who visited the effigy several times before its restoration and many times during and since the work was completed, calls attention to this in the following words:

I am under the impression that the embankments comprising the oval were made somewhat higher and also a little broader at the base than before the restoration, as all the soil was turned back that had been washed or ploughed down from the embankment. The projections at the back of the head (wings so-called) undoubtedly existed in my opinion. Also the "jaws" extended further along the sides of the oval and in the restoration were terminated too abruptly.

Those parts of the earthwork distinguished by vertical shading (*c*, *c* and *d*) are unmistakable at the present time, and if they had been restored by Professor Putnam in common with the rest of the effigy would have been more prominent than they are at present. The original outlines of the projections at the base of the head (*c*, *c*) are difficult to determine but they were probably narrower and higher than they now appear. These were dug into at the time of the restoration of the main body of the earthwork, but as Professor Putnam did not consider them parts of the effigy their contours were probably not changed materially. Plate *x*, *b*, is a photograph which shows the neck and base of the head of the effigy, and the projection at the right, taken during the restoration of the neck and base of head. Both projections are at present perhaps a little less than two feet high at their junction with the base of the head. They were considered parts of the effigy by Squier and Davis, McLean, Dr. Metz and the present writer, and they appear on the Museum's sketch plan of Serpent Mound park which was made just before the restoration of the effigy, a portion of which is shown on plate *xi*, *c*. That part in front of the oval marked *d* in fig. 16 is very prominent and the embankment at its highest point is now but slightly lower than the oval (see cross-section fig. 15, *c-d*). This was also considered a part of the effigy by McLean and Holmes, and is indicated in the sketch plan before referred to (plate *xi*, *c*).

That portion of the promontory on which the oval rests was carefully graded and the inner ends of the embankments forming

parts of the outline of the head sloped gradually to this grade, which according to the cross-section in Squier and Davis's plate was slightly lower at either side of, and near to, the oval than at the outer edge of the platform (*f, f*, fig. 16). This gave the effect of a trench encircling the oval which was very shallow opposite *f, f*. The gradual sloping of the inner ends of these embankments to the graded sides of the platform gave the effect of their continuation along *f, f*, much reduced in height, which accounts for the somewhat misleading delineation near these points in the drawings of McLean and Holmes. At the present time the space at either side of the oval is nearly level, the cross-section appearing nearly as in fig. 15, *a-b*.

The modifications of this portion of the effigy caused by the restoration of certain of its parts are apparently slight but important, and consist principally of the too abrupt ending of the embankments, *b*, near *e, e*, the probable levelling of the graded portions near *f, f*, and the change in the relative heights of embankments *a, b*, to those of *c, c, d*. The points *e, e*, are restored in the plan of the present writer, fig. 15.

The prominent place occupied by the serpent in the religious life of the American Indians is too well known to be enlarged upon here. He was the god of the upper regions—the four winds and four quarters, and he occurs in combination with the primitive cosmic symbol (the circle with inner cross and central sun circle) or some of its parts, from Ohio southward to Central America. He was Quitzalcoatl, the plumed or feathered serpent of the Aztec, revered by them as the god of fire and adored as the god of the air and four winds.¹ He was known to the Maya as Kukulcan, the divine serpent or divine four, ruler of the four quarters.² Among the Hopi he is sometimes known as Palulukonuh and his effigy, the head of which is shown in fig. 17, *g*, appears in the Palulukonti ceremony together with representations of the sun, clouds, thunderbolts, rainbow, etc.

In the South he is usually shown with plumes or feathers, while

¹ Zelia Nuttall, *Peabody Museum Papers*, vol. II, p. 70.

² *Ibid.*, pp. 68, 69.



A



B



C

THE SERPENT MOUND OF ADAMS COUNTY, OHIO

A, Plan by W. H. Holmes, 1886; B, View taken in 1883, looking southeast; C, View taken in 1917 by C. L. Young, looking northwest.

in the North he commonly appears with two to four horns (figs. 17 and 19, *a, c*). Figures 18 and 19, *c*, represent him in combination with the primitive cosmic symbol complete or in part.

A very interesting example of the head of this deity is shown in fig. 19, *c*. This is cut from thin copper and measures about thirteen inches in length. It was found with other copper symbols in the great mound of the Hopewell group by Mr. Moorehead in 1891. It is now in the Field Museum at Chicago. It represents the head of the horned serpent in combination with the cosmic symbol.

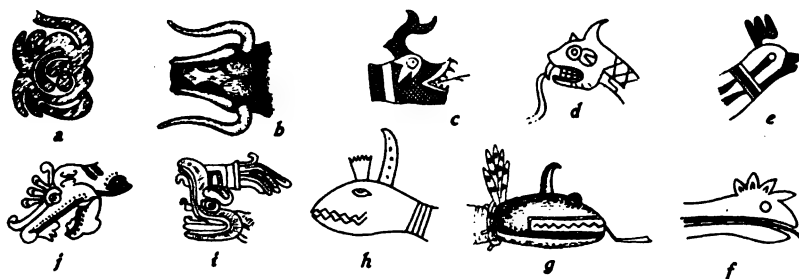


FIG. 17.—Heads of the horned or plumed serpent from the following sources: *a*, Cincinnati tablet; *b*, Turner group of mounds; *c*, pottery vessel, Alabama; *d*, stone disc, Alabama; *e*, pottery vessel, Arkansas; *f*, pottery vessel, New Mexico; *g*, Hopi Indians, Arizona; *h*, rock carving, Arizona; *i*, Mexican manuscript; *j*, Maya manuscript.

The outer circle of the symbol is compressed to form the outlines of the head. The central circle typifying the sun, and the four radiating arms representing the four directions which join the outer compressed circle or horizon line, are clearly indicated. In many representations of the cosmic symbol a dot or a small circle appears in the center of each of the four quarters formed by the cross. The circles which represent the eyes of this copper head and also the two circles near the base of the head are probably analogous to these. By a comparison with the drawing of the serpent head cut from sheet mica from the altar of one of the mounds of the Turner group, Ohio (fig. 19, *a*), it will be seen at once that the circles and inner projections near the base of the copper head when arranged in their normal positions as indicated in *d*, are analogous to those of the mica serpent *a*. To make this more clear the draw-

ing *b* is furnished, which is made to show the serpent illustrated in *a* as it would appear if viewed from above.

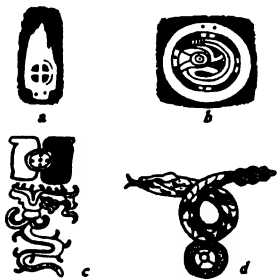


FIG. 18.—Combined serpent and cosmic symbols. *a*, *b*, From graves, Tennessee; *c*, Dresden codex; *d*, Mexican codex.

With the above in mind let us turn to the Serpent Mound as shown in figs. 15 and 19, *e*, *f*. The greater part of the outline of the head is formed by the outer embankments, but a portion on either side of the oval is indicated by the ridge produced by grading the promontory at these points (see cross-section *a*, *b*, fig. 15). It is possible that there may have been some erosion here and that the ridges may have been somewhat higher originally, but much erosion would probably have caused more irregularity than now appears.

It is also probable that during the restoration slight changes may have taken place here.

The oval embankment with the central altar of burnt stones where the ceremonial sun fires were undoubtedly kindled are prob-

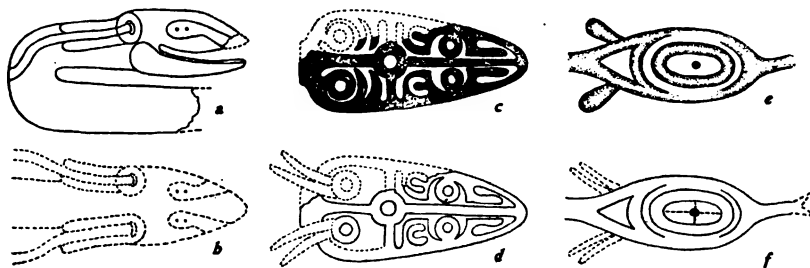


FIG. 19.—*a*, Mica serpent from Turner group of mounds; *b*, as the serpent shown in *a* would appear if viewed from above; *c*, serpent head and cosmic symbol of copper, Hopewell group of mounds; *d*, as *c* would appear had the horns been shown in their normal position and not curved inward; *e*, head of Serpent Mound; *f*, the same with horns and certain other portions tentatively restored.

ably analogous to similar symbols combined with the serpent in figs. 18 and 19, *c*. It is not improbable that a cross of some material occupied the position indicated in fig. 19, *f*. The two embankments projecting from the base of the head undoubtedly were horns arranged somewhat as shown by the broken lines in this figure.

It should be remembered that the embankments forming this effigy have been subjected to disturbances by the hand of man and by nature for many years. Erosion, the uprooting of trees, burrowing animals, and cultivation have all doubtless contributed in obliterating details. The main features of the earthworks, however, are well preserved. It is assumed that the horns, probably four in number and in pairs, now appearing as two low embankments, were once clearly defined. There is no trace of the cross which in all probability was once present within the oval.

There is a space of about thirty feet between the eroded end of what appears to be the tongue of the serpent and the edge of the cliff upon which it rests. For nearly half the distance, beginning at the cliff's edge, the horizontal surface of the rock is exposed and the remaining portion shows considerable erosion. The end of the tongue may have extended farther along this space and may have been forked as indicated in *f*, like the finely formed forked serpent tongues cut from thin copper found in the mound of the Hopewell group, one of which probably belonged with the head, fig. 19, *c*, although it was not joined to it.

There can be no doubt that the Serpent Mound belongs to the same interesting culture as most of the other great earthworks of southern Ohio that have been systematically explored.

Great credit is due Professor Putnam for its purchase and preservation by the Peabody Museum of Harvard University in 1887. The earthwork and the adjoining land was transferred by the Museum in 1900 to the Ohio State Archaeological and Historical Society for perpetual care as a free public park. It is situated about seven miles from Peebles, from which it is easily accessible by automobile.

PEABODY MUSEUM OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

A SKETCH OF EASTERN DAKOTA ETHNOLOGY

By ALANSON SKINNER

THE data for the following sketch were obtained principally from Sisseton and Wahpeton informants at Sisseton, South Dakota, during the month of August, 1914, on a field expedition for the American Museum of National History. A little Isanti material was gathered the year before at Portage La Prairie, Manitoba. The works of Lowie, Wissler, Dorsey, Riggs, and Mrs. Eastman also furnished much valuable material, and the writer wishes to acknowledge the valuable assistance of Mr. Amos Oneroad, a Wahpeton, as guide, interpreter, and informant.

Dress.—In costume we find the Isanti and Wahpeton inclining to the Central Algonkian. Anciently the men of both groups banged their hair in front and back and dressed it in four little braids, two hanging over the forehead and two in the rear. The Wahpeton, according to some of my informants, roached the hair at one time; others denied this however. The Isanti and probably the Wahpeton used a headdress made from a woven sash twisted turbanwise about the head, or the deer's hair roach. Warriors who had entered the camp circle of the enemy and escaped alive were entitled to wear the war-bonnet.

Their shirts were of buckskin and fringeless. Their leggings were tight with large ankle flaps. There was a seam in front, down which a short fringe, half an inch long, was fastened. The tops of the leggings were large, with double strings to fasten on the belt. Only the Isanti are said to have worn beaded garters below the knee.

Moccasins were formerly of the soft-soled type, with large ankle flaps like those of the Sauk and Fox. Lately soft-soled moccasins with high extension uppers, on the Ojibwa style, seamed over the instep, are used. The women wore the two-piece Central Algonkian dress.

The Sisseton inclined more toward prairie styles. The men parted their hair in the middle and wore two braids which they wrapped with otter fur. Their shirts and leggings were furnished with exceedingly long fringe, to which scalps or twisted strips of weasel skin were added. They used buffalo robes. Their moccasins were hard soled.

Lodges.—While all divisions, especially the Sisseton, used the buffalo-hide tipi with a three-pole foundation, the Isanti and Wahpeton utilized the square bark house in summer and the round or hemispherical lodge in winter. These latter were sometimes heavily built and earth covered. Presumably, according to my informants, the Dakota never made benches around the inner walls of the latter. These forms are admirably illustrated by Schoolcraft. The various parts of the lodge were named and were used in a formal manner much as among the neighboring forest tribes.

Household Utensils—Pottery. Pottery was made of pounded clay tempered with burnt flint, pounded. The coil process being unknown, the vessel was built up by pinching from a flat bottom. It was stamped on the sides with a paddle. Ears or lugs were placed on it, and it was smeared with glue and burned by use.

Mats made of braided corn husks were used on the floor, and no doubt floor mats of reeds and lodge mats of bulrushes were known, though data are not now available. Corn husks were made into mats by the Delaware and Iroquois, but I do not know of their use in this manner by the Central Algonkian. A specimen was obtained by the writer for the American Museum of Natural History.

Bowls and Spoons.—These were of the typical Central Algonkian type. The bowls, made from knots by charring and scraping, were round or oval and of all sizes. Spoons were made of wood or buffalo horn. The wooden spoons were short handled and broad bowled, like those of the Algonkian. The bowls and spoons used in medicine feasts and dances, especially the *wakan watcipi*, had animal-head handles, and were held as sacred. Types of all these objects were collected by the writer for the American Museum of Natural History. Others are in the Museum of the American Indian, Heye Foundation.

Flint knives, scrapers, and arrowpoints were used, as well as similar objects of bone. A double-pitted pebble hammerstone, exactly similar to those found on ancient Indian village sites all over the east, was obtained in use, together with a rubbing and sharpening stone. Grooved mauls used as hammers, pemmican pounders, and when of large size for bone crushing, were also gathered.

Grooved stone axes were used, but mostly to pound wood on another stone so that it might be broken. A few flint axes were said to have served for chopping.

Mortars and Pestles.—Mortars were made from short sections of logs, and were of the horizontal type common to the Central Algonkian, not the vertical variety of the Southern Siouans. The pestles observed were long heavy sticks, not shaped in any way. This is a cruder style than that of the Central tribes, who made their pestles taper in the center at the grip.

Woven Bags.—The square woven bags of the Central Algonkian made of cedar and basswood fiber were well known. They were formerly intended for all purposes, but now are used mostly to hold medicines. Woven tobacco pouches of Menomini and Ojibwa style, square, and worn around the neck, were used.

Stone Berry Crushers.—Round flat pebbles were used to mash berries and cherries on a flat stone slab. The fruit was dried and mixed with pemmican.

Parfleches.—The Isanti utilized barrel-shaped parfleches, the Wahpeton and Sisseton preferred the flat rectangular and square box type. These were painted with angular figures. Birchbark baskets and boxes are said to have been much used formerly. The Eastern Dakota incline towards the Plains with respect to their abundant use of rawhide. The forest Indians for the most part used very little rawhide, perhaps because they could not obtain buffalo.

Pack straps of the Ojibwa style were usually made of moosehide, with the center piece which passes over the forehead still retaining the hair.

Baby Boards.—These were formerly much used and seem to be

of the same type used by both Plains Dakota and Central Algonkian, judging by old illustrations.

Travois.—No data on the travois were gathered.

Canoes.—Dug-out log canoes are still used by all three peoples—Isanti, Wahpeton, and Sisseton. The last two tribes formerly had many bark canoes.

Weapons.—Bows, often quite long, and arrows tipped with stone, antler, or bone, and rawhide shields were common. The warclub was either ball-headed or flat and shaped like a gun butt. Stone-headed clubs, like those of the prairie Sioux, were probably not used to any extent, unless by the Sisseton.

Agriculture.—Corn, beans, squashes, pumpkins, and some informants say, tobacco, were raised by the Eastern Dakota. There is some question as to the time of their introduction, however. It is possible that these Sioux obtained these things from the whites. Corn is braided and hung on horizontal bars without the lodge, to dry, or it is taken green, roasted, boiled, or cut from the cob and dried, or fried. Tipsina is dug and dried. Pumpkins and squashes were sliced and dried as among the Central Algonkian. Wild rice was formerly much used. Maple sugar was also manufactured.

Picture Writing.—Picture writing on flat board slabs and on birchbark, particularly in connection with hunting charms and the medicine dance, is common. The figures are the familiar semi-realistic mnemonic symbols found among the Ojibwa and Menomini and were no doubt derived from them. All the examples collected by the writer, five in number, were Wahpeton, but several more, in the Museum of the American Indian, Heye Foundation, are Sisseton.

Tanning.—Buffalo robes were tanned with the hair on in regular Plains style. An elkhorn or wooden-handled hoe-shaped scraper was used to remove hair from hides needed for lodge-making. Some Sisseton women marked on the scraper handles in crude etching the number of hides they had dressed, and the number of tipis they had made.

Deer hides were dressed over an inclined log and fleshed in the same manner as by the Northern and Central Algonkian. This

means nothing from a comparative standpoint, as the process was well nigh universal in North America, though not found in the Southeast in quite the same manner.

Musical Instruments.—The deep water drum characteristic of the medicine lodge elsewhere may have been used in the *wakan watcipi*, but ordinarily the tambourine or deeper kettle drum, with one or two heads, was most common. Ceremonial rattles were usually made of sticks strung with deer hoofs, or of deer hoofs cut in fancy shapes and strung to wear about the neck or over one shoulder in dancing. The rattles used in the medicine dance were gourds. Flageolets, often carved with loons' heads, were used for courting, and bone whistles were for war purposes and the sun dance. Metallic jinglers, probably the successors of deer hoofs, were used on clothes and bags as rattles.

Pipes.—Pipes made of the red catlinite were exceedingly well made and abundant, as the Eastern Dakota have controlled the catlinite quarries of Couteau des Prairies from time immemorial. Almost every conceivable type of pipe was probably made by them.

Games.—Among the Eastern Dakota the following games have been noted. All or nearly all are so widely found among tribes of the same and adjacent culture areas that they can scarcely be considered significant.

Icasdohe, or bowling.	Hoop and javelin.
Two variations of snow snake.	Shinney, played by both sexes.
Bowl and dice.	Sliding wands over instep for distance.
Snow arrow.	Tops, darts, coasting on boards.
Lacrosse.	Kicking game, players kick each other.
Cat's cradle.	
Moccasin.	

Except bowling and coasting, I have recorded all these games from the Menomini. The Blackfoot also have the kicking game. Cup-and-ball, according to my informants, was not played by the Eastern Dakota.

Folklore.—The folklore of the Eastern Dakota is in the main strikingly like that of the Central Algonkian. I have observed

many parallels with that of the Menomini. However, the Dakota lack the sacred culture-hero cycle connected with the medicine dance. Many of the Dakota culture-hero stories find parallels rather among the Plains tribes and the Southern Siouans than among the forest peoples. However, a number of concepts occur which seem peculiar to the Dakota of both forest and prairie divisions, and are not found elsewhere. In particular may be mentioned the Double Women (*Wi'ya' nupapi*), visions of whom force youths to become berdaches, and, the Tree-Dweller, a stump-inhabiting dwarf. The Eastern Dakota, so far as my relatively meager information goes, have no beliefs concerning a mythical dwarf race, flying skeletons, night-wandering ogres, nor mysterious bundle-carrying goblins like the Algonkian to the east and north.

Burial Customs.—Perhaps all the Eastern Dakota at one time practised tree or scaffold burial. The Sisseton certainly did and older literature seems to point out that this was sometimes done by the Isanti and Wahpeton. For a long time all have buried in the ground, and I believe it was always customary for part of the Isanti and Wahpeton to do this. Graves were made with little houses above them in the Central Algonkian style. Little information was gathered on funeral and mourning customs, but all were of the Central Algonkian type. The death bundle, containing a lock of the deceased person's hair, and supposed to harbor one of his spirits, was kept, as is universal among the Central Algonkian. Like the Cree and Menomini the Dakota believed each person had two spirits (some say four), one of which, the soul, went to the other world. The soul was supposed to travel to the hereafter in much the same way as the Central Algonkian relate, the trip requiring four days' time, and ending with the crossing of a river, but the incidents of the journey are different and less elaborate. The souls were not supposed to have to cross a bridge.

Mourning Customs.—A lock of hair of the deceased is taken and kept in a bundle which is placed in the rear of the lodge in the sacred place. After a time a feast is given, and a person of the same age and sex of the departed takes the clothes making up the bundle and eats the food. The lock of hair is then buried and the spirit remaining in the hair is thought to leave.

Among the Menomini this custom is also in vogue, and the practices of these Algonkian people throw light on the meaning of the Dakota ceremony, now forgotten. The guest of the same age and sex is supposed to represent the deceased and be animated by his soul released from the hereafter by the keeper of the land of departed spirits for the occasion. After the ceremony, the impersonator of the dead is faced to the west and the soul of the deceased is dismissed to return. The Menomini ceremony is connected with the Medicine lodge.

A distinctly characteristic feature among the Eastern Dakota was the custom of having the society of the deceased, kit-fox, no-flight, or whatever it may be, mourn for him. The Dakota widows mourned four years, and dressed in wretched rags, etc., precisely like the Central tribes. Unlike the Cree, Ojibwa, and Menomini, the Dakota did not carry the body of the deceased out through the back of the lodge.

Naming Customs.—Ordinal names were used, and also personal individual titles. In the scalp dance a man might throw away his name and take that of a dead warrior relative, giving presents to the poor at the same time.

Children were named by their grandparents for some deed done in war, or after a famous ancestor. Guests were invited to a feast, after which the old person named the child, and a crier was sent out to announce it. Gifts were then made. The Bungi branch of the Plains-Ojibwa had this latter custom, but the Central Algonkian differed from it so far as my information goes.

Children's Training and Puberty Fasting.—Young male children were constantly instructed with regard to their future puberty fasts. Later, when the period arrived the boys would retire to the top of a hill and wail all night. Their faces were not blackened as among the Central Algonkian, where, by the way, both sexes fasted. Some youths had their hands tied behind their backs to keep them from running away. Others were bound to four stakes. These customs do not apply to the Central Algonkian.

Among the Central tribes dreams were generally of some of the great fundamental mythic powers of the universe, the sun, morning-

star, thunder, moon, horned snake, or underneath bear or panther. The Dakota dreamed of the ordinary bear, buffalo, elk, *unklehi* (underneath snake or panther), and Tree Dweller. Those who dreamed of the Double Women usually became berdaches.

The Central Algonkian could reject a dream three times, the Dakota must take what came to him at first. Generally, the "spirit" appeared to him as a man and went away in its true animal shape, although sometimes it never assumed an anthropomorphic form. Among the Central Algonkian the great cosmic powers generally appeared as idealized men, but when animals came, as they did, rarely, they always came in their own shapes.

It is believed some Dakota had a prenatal existence on earth and knew their guardians before they were born, having met them when wandering over the world as disembodied spirits. This is not a Central Algonkian idea, though the Menomini believe some children are incarnated strong powers and under their protection from birth, especially in the case of those descended from the thunderbirds.

Marriage.—This was arranged for the young people after they had met secretly. The groom's father or an old man hired by him acted as go-between; and the girl was ceremonially taken to the groom's lodge riding upon a fine horse. On the way the youth's brothers met her, assisted her to dismount, and carried her back in a blanket. Reciprocal gifts and feasting followed. Marriage by simple elopement also occurred.

Dances and Societies.—The Eastern Dakota had a number of military societies of the Plains type. Each of these was characterized by its own peculiar costume and rites, generally including the no-flight vow for the officers. The officers usually carried lances either straight or crooked, and other regalia. Through the writings of Wissler and Lowie these societies are well known and the reader is referred to the Anthropological Papers of the American Museum of Natural History, volume XI, for descriptions of them. For the purposes of this paper the writer will merely enumerate these and other societies and roughly point out their affiliations.

Military Societies of the Plains type: Tokana, No-Flight, Mawatani, Raven Owners, Badgers, Owl Feather Wearers.

Social Societies of the Plains type: Omaha.

Societies and Dances found among the Central Algonkian: Buffalo Dance, Medicine Dance.

The latter dance deserves more than mere passing mention. While externally it resembles the Ojibwa and Central Algonkian Midewiwin, its organization and ritual are of a very different order, placing it with the Iowa, Oto, and Winnebago. It is perhaps intermediate between the Omaha and Ponca and Central Algonkian types. The coyote dance resembles the Winnebago woman's dance. The heyoka clowns are found among many Plains tribes.

A certain number of peculiar cults and dances seem to be decidedly original with the Eastern Dakota, a few are found among both Eastern and Western divisions but among no other peoples. These organizations and dances are: Elk Ear, Thunder, Elk, Double Women, Bear, Raw Fish Eaters, Dog Liver Eaters, Yumini Watcipi, Mocking Dance. The Eastern Dakota bear dance resembles the Central Algonkian ceremony of that name only in its title.

SOCIAL AND POLITICAL ORGANIZATION

According to the latest information, gathered by the writer in South Dakota all three major bands of the Eastern Dakota were subdivided into exogamous patrilineal gentes, each of which had its place in the tribal camp circle and each of which had its own civil officers. Marriage within the gens was tolerated after a special ceremony, but this was rare indeed. The Sisseton were divided into nine groups nicknamed for traditional peculiarities; the Wahpeton into six, mostly named from the localities where they lived; and the Isanti into six groups named for their chiefs. None of these bands were given animal names like the gentes of other tribes, instead their titles were more like the band names of the Plains peoples. Much confusion has been made by the varying fortunes of some of the gentes, especially among the Isanti, where first one gens then another has been most popular and important, and the name of the division changed accordingly, the band being called for each gens which became predominant. Finally, the Isanti band prevailed and gave its name to the group.

Government.—Each gens had its own group of twenty *wakicun* or councilors who had a tent of their own. In the tribal camp circle each councilor's tent was pitched in front of the place occupied by his gens. For matters of tribal importance the councilors of all gentes got together. All the councilors had equal authority and each gens voted as a unit. They had a herald who announced their decisions. The chief's office was hereditary in later years, but formerly men achieved the honor through wisdom and prowess. Perhaps there were no chiefs before white advent. On all occasions except when in tribal council the chief had no authority over the councilors; in the tribal council he was supreme. Each chief had his own "head soldier" or *akitcita* (Lowie's data make it four instead of one) who was his agent in all affairs, and who held office for life. Some at least of the older Dakota believe that much of their political organization was due to French suggestion, at least so far as the coalition of the different tribes was concerned.

The *akitcita*, known as "soldiers," or "police," were individuals selected for their bravery and not entire military societies chosen for the purpose at different times as among the Teton Dakota. Occasionally, this may have been done among the Sisseton, and according to Lowie, among the Wahpeton, but the society, generally the kit-foxes (Tokala), seems never to have had full rights. In other words, the Eastern Dakota more nearly resembled the Algonkian and Southern Siouan than the Teton in this respect. The *akitcita* performed the typical acts of soldier killing, had their separate tipi, and their challenging contests, etc., in regular Plains style.

A man became *akitcita* or eligible for service after having performed any one of a certain number of specified deeds of valor, such as counting coup, killing or scalping a foe or rescuing a friend. The greatest deed of all was to perform one of the series before having spoken to any young woman save his sister. All these deeds entitled the performer to some special insignia. The war-bonnet was given a man who succeeded in penetrating the enemy's camp circle.

CONCLUSION

An analysis of the culture of the Eastern Dakota shows that the Isanti and Wahpeton divisions seem intermediate between the Forest and Plains peoples. In material culture they are almost wholly of the Woodland type, especially do they resemble the Central Algonkian. On the other hand, other aspects of their culture represent a mixture. In social and political organization they incline toward the prairie tribes, or at most toward the Southern Siouans, ceremonially they are either original or like the prairie people, with a smattering of Algonkian influence, especially as regards hunting customs connected with medicine and charms, and bark and board pictographs. While possessing a form of the medicine dance it seems, so far as our present knowledge goes, to resemble more closely the phase found among the Southern Siouan than the typical Central Algonkian.

The Sisseton show a stronger relationship with the Plains. This perhaps is due to their geographical position, for they were farther from the forest and its influences than were either Wahpeton and Isanti, and less in contact with the Central Algonkian. In costume, lodges, subordination of agriculture (although even the Yankton raised some corn), in fact respecting all points of material culture, forest influences were weaker, and socially, politically, and ceremonially they were more strongly inclined to the Plains.

The Isanti and Wahpeton may perhaps be considered typical intermediate tribes, whereas the Sisseton, like the Ponca and Omaha, and the Plains-Cree, have crossed the transition line and are just on the border of true Plains culture.

MUSEUM OF THE AMERICAN INDIAN,
HEYB FOUNDATION, NEW YORK

A UNIFORM BLANK OF MEASUREMENTS TO BE USED IN RECRUITING. A PLEA FOR THE STANDARD- IZATION OF ANTHROPOLOGICAL METHODS¹

BY FABIO FRASSETTO

AMONG the many problems which for some time past await a satisfactory solution, there is one which demands, and I believe fully deserves, your earnest attention and coöperation. It is the problem of the standardization of anthropological measurements, which includes also that of the method of expressing the measurements numerically; a problem which may to some appear insignificant, but which really is of high scientific and practical value.

It is well known to all of you that standardization of anthropometric measurements is urgently needed, and that, at the International Congresses of Monaco in 1906, and Geneva in September of 1912, a satisfactory agreement for craniometry and cephalometry and anthropometry was reached. But it must also be recognized that for the measurements of some parts of the body, an agreement in practice is yet to be attained. We see, in fact, that for the thorax, for the pelvis, and for the other parts of the skeleton, the measurements vary, as much for the number as for the points of reference which distinguish them one from another, and for the manner in which they are made.

For the thorax, for instance, some authors take only two diameters, others four, others six; and in regard to the antero-posterior diameter, it is taken at the level of the nipples or at the level of the fourth rib, or at the level of the jugulum, not at the level of the basis or apex of the xiphoid cartilage, making the measurement

¹ This paper was read before Section H of the American Association for the Advancement of Science at the Baltimore Meeting, 1918, by Prof. Fabio Frassetto, Professor of Anthropology, University of Bologna, Italy, Temporary Attaché, Royal Italian Embassy.

sometimes with the compass held horizontally, sometimes with the same held obliquely.

Furthermore, in the measurements upon the living subject, the inaccuracies in technique and in the instruments used is added to the defects already indicated for skeletometry.

Thus, for instance, in making the measurements of the biacromial diameter, which all anthropologists advise, errors are made, varying from 10 to 30 millimeters; errors which, given the shortness of the distance to be measured, are not admissible, so much so that that they moved Parson, who recently studied this measurement, not to use it any longer, and to substitute a measurement taken at the upper part of the deltoid muscles.¹

These and other uncertainties which we regret in the field of scientific anthropometry and which are rather serious, become even more so and more numerous when we examine the technique followed in the fields of applied anthropometry and in other kindred fields by persons not sufficiently dexterous in anthropometrical technique. We find, then, that the obstetrician measures one just born in a fixed way and with fixed instruments, which are not exactly the same as those used by the anthropologist. We find that at one's puberty the hygienist does not conform entirely to the data of a rigorous anthropometry; and that the military surgeon does the same, when one presents himself for the duties of the draft; to say nothing of the clinical doctor, who wishes to discover, through the anomalous proportions of the parts of the body, the reasons for a diseased state. And let us not speak of anthropometry practised upon the living subject for artistic purpose, nor of that practised upon the cadaver by the anatomist.

Now, having in mind the fact that one of the indispensable phases through which the scientific method must develop is precisely *comparison* (by means of which are known, enumerated, and also valued quantitatively and qualitatively resemblances and differences among objects) and that one of the principal aims of *external anthropometry* (setting aside *internal and intermediate*

¹ Parson (F. G.), *Biacromial Breadth—On the Proportion and Characteristics of the Modern English Clavicle*. *Journal of Anatomy*, London, 1910, li, 71-93.

anthropometry) is that of establishing the proportions among the various parts of the body in the different ages of individuals so as to utilize them not only for their racial but also for the diagnosis of their individual constitution; having all this in mind, many comments are not needed to demonstrate the impossibility of using seriously all the measurements gathered by such different persons with such a diversity of technique and of instruments. And then, why persist in this false way if it does not lead to any useful result? Why waste so much time and money to arrive at nothing; and still worse, to spread, under the false appearance of scientific truths, serious errors and false concepts, to the damage of science itself and of society?

From such a deplorable state of things results the greatest urgency to face and to solve the problem of the revision and of the standardization of anthropometric measurements; the more so, since the solution of this problem is strongly urged everywhere, and especially in the United States, in England, and in Italy; in which nations there has recently been manifested a certain anthropological activity in connection with the war, as much in the studies for the physical well-being of soldiers, as in purely scientific studies. Now, the results of such studies and of other eventual studies which might be made, would be in themselves not very fruitful, could they not be compared with one another; and since, speaking scientifically or socially, as you will, such comparisons are indispensable, there can be no doubt whatever as to the necessity of instituting a uniform blank of measurements to be used in recruiting. But to attain this useful end, there is imposed from the beginning the necessity of a perfect accord upon the method of numerical valuation for anthropological measurements; that is to say, the solution of the first of the two problems mentioned.

It is well known that scientific measurements are expressed by means of two principal systems: the *metric system* and the *English system*. It is further known that while the first has for some time been used in all the nations of the world, the second is still generally used—but not by all—in England, in the United States of America, and in Canada. Nevertheless, it must be remembered that in the

war, just closed, in England, and especially in the United States, very great progress has been made toward the general adoption of the metric system, towards which end will have contributed not a little the decision taken by the War Department General Order for adopting the metric decimal system in all operations of the war of the American Army fighting in Europe.

WAR DEPARTMENT,

WASHINGTON, January, 1918.

The metric system has been adopted for use in France for all firing data for artillery and machine guns, in the preparation of operation orders and in map construction. Artillery and machine gun material intended for service abroad is being graduated accordingly. Instruction in the metric system will be given all concerned. The sights of the infantry rifle and the automatic rifle will be left unchanged.

(003.11, A.G.O.)

By order of the Secretary of War.

TASKER H. BLISS,
General, Chief of Staff.

OFFICIAL

H. P. MCCAIN,
The Adjutant General.

This wise decision of the War Department is for all of us an encouragement and a spur to the hope that in the fruitful works of peace there may be attained the desired agreement upon the adoption of the metric system in making measurements for the recruiting in American and English armies and in all anthropological researches. Especially so, if the proper offices of the American and English Departments of War and Navy will continue the work already very successfully started during the war for all the operations of the war, and if all those American and English colleagues who may not as yet have followed in their anthropological researches the above-mentioned system, used, in fact, already for some time by not a few of their compatriots, will also do the same. The question therefore of the desired institution of a uniform blank for measurements to be used in recruiting is based on the solution of this first problem.

Assuming that an agreement has been reached upon the problem of which we have just spoken, let us now pass to that more general

one in regard to the standardization of anthropological methods. The necessity of coming to an agreement upon this most important and fundamental problem has been explicitly manifested on several occasions, especially for that part which concerns the anthropometric technique and nomenclature in general; and we ourselves have treated this in the accounts of the *Anthropological Atlas of Italy* made in 1909 and 1910 on the occasion of the third and fourth reunion of the Italian Society for the Progress of Science, and also at the International Anthropological Congress held at Geneva in 1912 and on still other occasions.¹

Today when anthropological researches are being greatly developed and accomplished with rigor of procedure, and are developing largely in the field of practical application, the necessity of a standardization of anthropological methods is more keenly felt. For this reason we hold it to be opportune to call the attention of the anthropologists and of the psychologists here assembled to this question of fundamental importance, so that from now on may begin those studies which should lead in the best way and in the least time to the attainment of our object. Since, however, the study which we propose to undertake is a study of preparation, it cannot result in definite perfection; and, with the progress of our science, adjustments and additions will have to be made afterwards, in order to obtain a methodology always more perfect and always more in accord with the perfecting of instruments and with the new facts, which from time to time will be discovered, correcting or confirming, as is the custom to do in the most progressive scientific methodologies.

But since such a task appears very complex and full of difficulties, a wise counsel will be the institution of a permanent International Executive Committee, in which may be duly represented the schools fitted to give rigorous and at the same time also practical direction to our science.

Practical steps towards the formation of such a committee have already been taken at and after the reunion of the 18th International

¹ See F. Frassetto, *Lezioni di Antropologia*, Seconda Edizione, Milano, Hoepli, 1918, and particularly *Atti. Soc. Ital. Progresso Scienze* vol. 3, 1909, and vol. 4, 1910.

Congress of Americanists at London in 1912, on which occasion an International Committee of Anthropologists was established with Professor Marett, of Oxford, as Secretary.¹ The work of the committee was interrupted by the war.

Such a committee should superintend the careful unfolding of the whole program of work; that is to say, it should gather and coördinate the various ideas and propositions both its own and those which would be formulated by the various anthropologists into a blank which should express in the best possible way the logical systematization of anthropological methodology according to the actual state of our knowledge, anthropological as well as scientific in general. This grave task might be facilitated and simplified, should subdivision of the work be attained in such a way that each of the single members of the aforesaid committee might give his contribution to those arguments in which his own competence and aptitude in treating them were recognized. I leave, however, to the initiative of the committee which will be nominated the establishment of the manner of organizing the above-mentioned subdivision of the work and I bring my appeal to an end, expounding briefly in a decalogue in which are shown the fundamental criteria which, according to our judgment, should serve as guides for the unification of anthropological methods.

Such a decalogue, the ample and complete development of which I shall give presently, is the following:

I. Anthropological researches should have a double purpose,—scientific and practical.

II. The method to be adopted should be the inductive method, this should be metric and descriptive and should include the study of the internal organs and the organs of sense.

III. Work should be done, in so far as possible, upon well-determined and sufficiently numerous material.

IV. The selection of measures and of points of reference, should be based upon morphological and physiological criteria.

V. The system for expressing anthropological measurements should be the metric decimal system.

¹ *Proc. XVIII, Internat. Cong. Amer.* London, 1912, vol. 1, LXXXVI.

VI. Anthropological measurements should be taken with a properly selected set of instruments and according to uniform methods; they should always be expressed in centimeters, and in the case of measurements between symmetrical points these should always be determined by working from the left side. A minimum amount of admissible error shall be determined for each measurement.

VII. Anthropological nomenclature in general, as also that for measurements, should be scientific, simple, and should be expressed always in the Latin language. It is to be recommended that non-specialists use also their own language.

VIII. The original measurements should always be set down in full, and should be elaborated according to strict statistical methods. The selection of indices and of the categories into which they may be grouped should be made, in so far as possible, on the basis of comparative morphologic and morphometric criteria.

IX. All graphic reproductions (photographs, designs, etc.) should always have the same orientation for the same parts of the body; they should not be under a size to be determined by subsequent agreement, and in so far as possible, there should be a wider use than now prevails of radiography, of chromophotography, and of stereoscopic photography.

X. The synthesis of numerical and morphological data should be made according to the method of diagrams and maps; and the grouping of anthropological units as well as their geographical distribution should be made according to the principles of *varieties*, *species*, *genera* . . . , as is the custom in zoölogy and in botany.

Having thus arrived at the end of our communication and returning to the theme with which we started—that of the institution of a uniform blank of measurements for recruiting—we formulate the wish that the proposition which we made today in this memorable assembly be received with general favor, to the entire advantage of the progress of science and of social well-being.

ROYAL ITALIAN EMBASSY,
WASHINGTON, D. C.

THEODOOR DE BOOY

By MARSHALL H. SAVILLE

IN the death of Theodoor de Booy, American archaeology has lost one of its most enthusiastic workers and field explorers.

Mr. de Booy died from the effects of influenza at his home in Yonkers, N. Y., February 18, 1919. He was the son of Vice-Admiral C. J. G. and Mary (Hobson) de Booy, and was born in Hellevoetsluis, Netherlands, December 5, 1882. He received his education at the Royal Naval Institute of Holland. In 1906 he came to the United States, becoming an American citizen in 1916. In 1909 he married Miss Elizabeth Hamilton Smith, of Louisville, Kentucky. In company with his wife, Mr. de Booy went to the Bahama Islands in 1911, and during his residence there became interested in the antiquities of the Caicos group of the Bahamas, devoting much time to the exploration of their numerous caves and mounds. On his return to the United States, Mr. de Booy published, in 1912, the first results of his archaeological researches in a paper entitled "Lucayan Remains on the Caicos Islands." He then determined to devote his life to the subject, and the opportunity soon presented itself, when he became attached to the Heye Museum, now the Museum of the American Indian, Heye Foundation, of New York City. Mr. de Booy joined the staff as field explorer for West Indian work, and sailed for the Bahamas in June, 1912, remaining there for six months. He was notably successful on this trip, among the most important objects recovered being a remarkable paddle which he discovered in a cave on Mores island. Mr. de Booy's next expedition was to Jamaica, where he spent the months of January, February, and March of 1913, on this trip conducting excavations in some of the kitchen-middens found on various parts of the island. During July to October of the same year he devoted his attention to Santo Domingo, there undertaking the first systematic exploration ever made in this important and

little-known field, a work which was continued in the spring of 1914. On his return to the United States, Mr. de Booy prepared a report on the results of the two expeditions, which were devoted chiefly to the exploration of certain caves in Santo Domingo and to work on the small island of Saona. In October and November of the same year he made an archaeological reconnoissance of eastern Cuba, and was the first to discover the great riches of this hitherto neglected field. The year of 1915 was a busy one with Mr. de Booy. The months of February to April were spent by him in exploration and excavations on the island of Margarita, Venezuela, and from May to September he was occupied in excavating in the south-eastern part of Trinidad. In 1916 Mr. de Booy made a third trip to Santo Domingo, and in the same year he visited Porto Rico and Martinique. On all of these islands he conducted excavations.

Owing to the acquisition of the Danish West Indies by the United States, Mr. de Booy was sent by the Museum to the islands comprising this group, where he remained from October, 1916, until February, 1917. This was the first archaeological work ever done there, and he was notably successful in obtaining material and information respecting the antiquities of this region. With this expedition his fieldwork for the Museum came to an end. Early in 1918 he severed his connection with it, and commenced preparations for an exploration of the unknown region of the Perijá mountains in eastern Venezuela, and an investigation of the ethnology of the Motilone Indians, the savage remnant of a tribe which has always kept their country free from white settlement and exploration. This journey was made under the auspices of the American Geographical Society and the Museum of the University of Pennsylvania, of which latter institution he became a field worker for a short period. After his return from this trip, Mr. de Booy joined the force of the State Department Inquiry, as one of its South American experts, and was still engaged in this work at the time of his death.

One of the most active and prolific investigators in archaeological and geographical research, Mr. de Booy had reached the point where the future held promise of still greater and more valuable results. His genial and pleasing manners made for him

many friends at home and abroad, and his early passing is a distinct loss to this branch of scientific endeavor. With commendable industry he prepared reports immediately after each expedition, and at the time of his death was engaged on a comprehensive book describing the region of his latest activities. His collections and writings find a place in the front rank of West Indian exploration, and our knowledge of the ancient history of the Antilles has been greatly enhanced as the result of his entering this field. A list of his most important publications follows:

1912. Lucayan Remains on the Caicos Islands. *American Anthropologist* (N. S.), vol. XIV, no. 1, January-March, 1912, pp. 81-105, 18 figs. pl. VI.
1913. Lucayan Artifacts from the Bahamas. *American Anthropologist* (N. S.), vol. XV, no. 1, January-March, 1913, pp. 1-7, 5 figs. Reprinted as *Contributions from the Heye Museum*, No. 1.
 Certain Kitchen-middens in Jamaica. *American Anthropologist* (N. S.), vol. XV. Reprinted as *Contributions from the Heye Museum*, No. 3.
1915. Pottery from Certain Caves in Eastern Santo Domingo, West Indies. *American Anthropologist* (N. S.), vol. XVII, no. 1, January-March, 1915, pp. 69-97, figs. 12-28, pls. IV-IX. Reprinted as *Contributions from the Heye Museum*, No. 9.
 Certain West-Indian Superstitions Pertaining to Celts. *Journal of American Folk-Lore*, vol. XXVIII, no. CVIII, January-March, 1915, pp. 78-82. Reprinted as *Contributions from the Heye Museum*, vol. II, no. 3.
 The Cradle of the New World. *Bulletin of the Pan American Union*, March, 1915, pp. 311-319, 5 illustrations.
1916. Certain similarities in Amulets from the Northern Antilles. *Holmes Anniversary Volume*, Washington, 1916, pp. 24-30, 3 plates.
 Notes on the Archeology of Margarita Island, Venezuela, *Contributions from the Museum of the American Indian, Heye Foundation*, vol. II, no. 5, pp. 1-28, figs 1-15, pls. I-VIII.
 Island of Margarita, Venezuela. *Bulletin of the Pan American Union*, vol. 42, 1916, pp. 531-546.
1917. The Birthplace of Josephine, Empress of France. *Bulletin of the Pan American Union*, April, 1917, pp. 493-498, 5 illustrations.
 The Virgin Islands of the United States. *Geographical Review*, New York, vol. IV, no. 5, 1917, pp. 359-373, 9 figs.
 Indian Petroglyphs in the Antilles. *Forward*, Philadelphia, vol. XXXVI, nos. 17-18, April 28, May 5, 1917, 6 illustrations.
 Archeological Investigations in the Virgin Islands. *Scientific American Supplement*, No. 2180, October 13, 1917, pp. 232-234, 9 illustrations.
 Eastern Part of the Dominican Republic. *Bulletin of the Pan American Union*, September, 1917, 7 pp. 5 illustrations.

- Archeological Notes on the Danish West Indies, etc. *Scientific American Supplement*, No. 2189, December 15, 1917, pp. 576-577, 8 illustrations.
- The Town of Baracoa and the Eastern Part of Cuba. *Bulletin of the Pan American Union*, Nov. 1917, pp. 627-639, 9 illustrations.
1918. Certain Archeological Investigations in Trinidad, British West Indies. *American Anthropologist* (N. S.), vol. 19, no. 4, October-December, 1917, pp. 471-486, figs. 61-64, pls. III-VIII, Reprinted as *Contributions from the Museum of the American Indian, Heye Foundation*, vol. IV, no. 2.
- The Turks and Caicos Islands, British West Indies, *Geographical Review*, vol. VI, no. 1, July, 1918, pp. 37-51, 6 figs.
- The Virgin Islands; Our New Possessions. Joint author with John B. Faris. J. B. Lippincott Co., Philadelphia, 1918. 292 pp., 97 illustrations, 5 maps.
- The People of the Mist. An Account of Explorations in Venezuela. *The Museum Journal of the University of Pennsylvania*, vol. IX, nos. 3-4, September-December, 1918, pp. 183-224, figs. 45-63.
- An Exploration of the Sierra de Perija, Venezuela. *The Geographical Review*, New York, vol. VI, no. 5, November, 1918, pp. 385-410, 15 figs.
- The Western Maracaibo Lowland of Venezuela. *Geographical Review*, New York, vol. VI, no. 6, December, 1918, pp. 481-500, figs. 1-13 pl. xvii, large folded map.
- Noises in Baracoa, Cuba. *Forward*, Philadelphia, vol. xxxvii, no. 3, Jan. 19, 1918, 3 illustrations.
- Buried Treasure in the West Indies. *Forward*, Philadelphia, vol. xxxvii, April 13, 1918, 3 illustrations.
- The Fragrant Island of St. John. *Forward*, Philadelphia, vol. xxxvii, March 2, 1918, 3 illustrations.
- Martinique, its Inhabitants, Cooks, and Sportsmen. *Forward*, Philadelphia, vol. xxxvii, Feb. 21, 1918, 3 illustrations.
- A Strange West Indian Industry. *Forward*, October 19, 1918, 1 illustration.
1919. On the Possibility of Determining the First Landfall of Columbus of Archaeological Research. *The Hispanic American Historical Review*, vol. II, no. 1, February 1919, pp. 55-61.
- Tropical Versus Arctic Exploration. *The Scientific Monthly*, May, 1919, pp. 433-436.

The following are unpublished.

Santo Domingo Kitchen-midden and Burial Mound.

Virgin Island Archeology.

Notes on the Archeology of Eastern Cuba.

The Unknown Perija Mountains of Venezuela and Their Inhabitants.

A book to be posthumously published.

NEW YORK,

March, 1919

DR. FRANK BAKER

By JOHN R. SWANTON

ALTHOUGH primarily a biologist the subject of this sketch, whose death occurred on September 30, 1918, was one of that group of Washington students who were instrumental in laying the foundations of the science of Anthropology in America, and he is deserving of particular notice in this journal since he was Chairman of the Editorial Committee having in charge the publication of the original *American Anthropologist* from 1893 until 1898 when it gave place to the present organ. The following account of his life and activities is compiled from a memorial sketch by Dr. Fielding H. Garrison, printed in the *New York Medical Journal* for November 16, 1918, and information contained in the resolutions on his death adopted by the Faculty of the Medical Department of Georgetown University of which he was Vice-President.

Doctor Baker was born at Pulaski, N. Y., in 1841. His ancestors came from Gloucestershire, England, to New England where they took part in the Revolutionary war. His schooling was private and local, but his father, Thomas C. Baker, was a man of wide reading. Immediately on the outbreak of the Civil war he enlisted in the Thirty-seventh New York volunteers and served until 1863 when he was transferred to Washington, where he later entered the government service and began the study of medicine. Sept. 13, 1873, he married Miss May E. Cole, of Sedgwick, Me., who survives him together with six children, one of whom, Col. Frank C. Baker, was a member of the medical corps in the U. S. expeditionary army in France.

In 1880 Doctor Baker received the degree of M.D. from Columbian (now George Washington) University. In 1883 he became Professor of Anatomy in Georgetown University, D. C., and continued to occupy the chair until his death, a period of thirty-five



DR. FRANK BAKER, 1841-1918

years. This institution conferred upon him the degrees of A. M. (1888), Ph.D. (1890), and LL.D. (1914). To his active coöperation and counsel as a member of the building committee, the University is largely indebted for the present building of the medical school completed in 1886.

Having entered the U. S. Life Saving Service, he became Assistant Superintendent in 1889. In 1890 he was made Superintendent of the National Zoological park and retained this position until 1916, when advancing years caused him to resign.

Doctor Baker was one of the founders of the local anthropological (1879), biological (1880), and medical history (1913) societies. He was president of the Association of American Anatomists in 1897, of the Anthropological Society of Washington, 1897-1898, and of the Medical History Club of Washington, 1915-16, and for twenty-one years (1890-1911) secretary of the Washington Academy of Sciences. As stated above he was Chairman of the Editorial Committee of the *American Anthropologist* (old series) from 1893 to 1898. He was a member of several societies in addition to those above mentioned.

Among the various literary activities of Doctor Baker may be mentioned the following. He was one of the collaborators of Billings's *National Medical Dictionary* (1890), supplied the definitions of anatomical and medical terms in *Funk and Wagnalls's Dictionary*, and contributed several monographs on regional anatomy to the *Reference Handbook of Medical Sciences*. His first contribution to medical literature comprised two papers on President Garfield's case (1881-82), in which he showed that the wound was caused by the second bullet and correctly diagnosed its course in a well-accredited diagram made two days after the event. This was followed by a number of papers on anatomical and anthropological subjects, the most notable of the former being *The Rational Method of Teaching Anatomy* (1884), *What Is Anatomy?* (1887), *Some Unusual Muscular Anomalies* (1887), and *Nomenclature of Nerve Cells* (1896). Doctor Garrison states that "his monograph on the *History of Anatomy* published in *Stedman's Handbook* compares favorably with the well-known article of Sir William Turner (*En-*

cyclopaedia Britannica), which has remained the ranking contribution in English," and he also says that "since the death of the later Dr. Robert Fletcher [another prominent founder of the Anthropological Society of Washington], he was probably the most erudite physician in Washington." His later publications were devoted mainly to studies connected with the history of anatomy and medicine.

Doctor Baker's anthropological work was confined to his earlier years, his principal contributions to anthropological literature being the following: *Anthropological Notes on the Human Hand*, *American Anthropologist* (O. S.), Washington, 1888, vol. I, pp. 51-75; *The Ascent of Man*, *American Anthropologist* (O. S.), Washington, 1890, vol. III, pp. 297-319; *Primitive Man*, *American Anthropologist* (O. S.), vol. XI, pp. 357-366.

BOOK REVIEWS

METHODS AND PRINCIPLES

The Mythology of All Races: vol. XII. *Egyptian*, W. MAX MÜLLER;
Indo-Chinese, Sir JAMES GEORGE SCOTT. Marshall Jones Co.,
Boston 1918. xiv, 450 pp.

In this last text-volume of Dr. Gray's valuable series, Egyptian mythology occupies pp. 1-245 and Indo-Chinese the rest of the volume. In pp. 432-450, the editor furnishes a bibliography that on the Egyptian side makes no claim to completeness but contains all the necessary material. The bibliography of Indo-Chinese mythology is very short, but doubtless exhaustive.

It seems best to begin with a discussion of the latter part of the volume because little more can be said about it than a statement of its contents. Sir James Scott speaks of the peoples and religions of Indo-China, their myths and legends, their festivals and finally of the thirty-seven *Nats*, who, it seems, are only thirty-four. It is not pretended that the mythology of Burma and Tonkin is influential or important. On the contrary, the author points out frequently that the material of these stories is often derivative and the conceptions involved puerile. But he has put together a number of interesting facts, recondite because little known, and valuable for purposes of comparison. And he has furnished his account with nineteen large plates, most of them highly colored, which tell almost as much as any text could do of the nature and character of these curious spirits, called *Nats*. The colored plates are all taken from Temple, *Thirty-Seven Nats of Burma*, a book on which this account largely depends.

Much the more valuable portion of the volume is the brief examination of Egyptian mythology by Professor W. Max Müller. Professor Müller is one of the two most distinguished Egyptologists in America. He writes with the fullest and most direct acquaintance with the sources and presents the mature result of thorough research and long reflection on all phases of the life of ancient Egypt. It would be difficult to overrate his equipment or competence. And, in spite of its short compass, his presentation is one of the best that have ever been published.

As a matter of fact, it is much more than an account of Egyptian mythology. It is a highly significant and suggestive study of Egyptian

religion. That was inevitable from the nature of Egyptian mythology. Greek mythology, in the form we generally know, is largely the result of direct and often determinable poetic creation, quite irresponsible and only loosely associated with religious thinking and acts. Not so Egyptian myths. We know them largely from liturgies, and from the figures and cult-actions that they are meant to explain. That is, they form an integral part of Egyptian religious activity and cannot be dissociated from it.

In one other respect, the study of Egyptian mythology is a different thing from the Greek mythology, which is much better known and almost immediately comes to our minds first when the word mythology is mentioned. The Greek stories are concerned with persons who have a definite individuality even for us. That individuality is somewhat deceptive. It is due to an artificial selection on the part of later grammarians and mythographers who have suppressed contradictions and provided continuity and sequence where those elements were lacking. Closer study reveals a confusion of forms and functions that are usual in polytheism, but any examination of Greek mythology has the inestimable advantage of proceeding from a "textus receptus" to which it is possible to attach variants.

In the Egyptian myths, on the other hand, there is no such established basis of comparison. The functions of one god are assimilated with extraordinary readiness to those of another, in cult, or prayer or legend, so that, in most cases, it is in the highest degree difficult to establish definite lineaments for any one of them. It is only in the case of the Osirian cycle, very fully discussed in Chapters v and vi, (pp. 92-128), that we seem able to detach marked personalities from the mass of confused detail that is presented in most accounts, and, we may suspect, that this fact is due to causes similar to those that have given Greek myths their apparent cohesion.

This lack of definite personalities, this confusion of details and functions, was taken to be an indication of the essentially pantheistic nature of Egyptian religion. Many of the scholars who held this view were quite unconsciously animated by the century-old awe with which western Europe had regarded the mysterious divinities of the Nile. Especially when the Rosetta stone seemed to furnish the key to the long locked inscriptions, imaginative men were certain that the rending of the veil of Isis would disclose a new insight into the universe. Quite naturally they found what they expected to find. Even first-rate investigators were prone to attach a philosophic depth and universal meaning to the

stories they unrolled from the papyri and this fact, together with the tendency of men to over-estimate the value of the subject matter with which they habitually deal, gave a fundamentally wrong conception of Egyptian spiritual life.

Against this view, there was soon advanced the other one—which might be termed that of common-sense—that Egyptian myths were precisely what they seemed to be, that the stories were crude because the ideas which they expressed were crude, and that so far from representing a profound and philosophic pantheism, they were the natural expressions of a primitive animism ossified into something like a system by sacerdotal tradition. That was the position of Maspero and it is whole-heartedly urged by Professor Müller. The argument is clearly stated, and, to my mind, quite cogently.

But the book is in no sense argumentative or polemical. There is a deal of matter given, so much, in fact, that one of the important functions of the series, that of furnishing material for reference and comparison, is admirably preserved. This is done, not merely in words, but largely by the many illustrations from the monuments—a procedure practically unavoidable in any study of Egyptian mythology. There are further a few typical texts, and an alphabetical list of the gods outside of the Osirian cycle.

The author then deals in an authoritative way with the difficult theoretical questions involved in the worship of animals, in magic and in Egyptian conceptions of the future life. The last chapter discusses the development and propagation of the Egyptian religion.

More than sixty pages of notes, which themselves often contain additional material of high value, close Professor Müller's book.

The value of the book in contents and methods has been sufficiently indicated. It is for that reason unfortunate that certain mechanical defects make it hard to use. There is in the first place no index, not even the briefest one. This, for a book which offers so much, is a serious omission. No doubt, in a work of this nature, the preparation of a complete index was very difficult, but an indifferent or incomplete index is still much better than none at all. Further the notes are made difficult to consult for lack of the simplest of all devices, *viz.*, some indication at the top of the page of the chapter to which they belong or the page on which the annotated passage appears.

There are small points at which issue might be taken, less with Professor Müller's statements than with the unqualified form in which they are made. The official etymology of Sarapis may well have been

Osor-hap (p. 386, no. 19), but the balance of probability is still in favor of his Sinopean origin. Nor does it seem to me proper to say that the "Isiac mysteries" exercised less influence on the classical mind than did those of Cybele or Mithra (p. 121). It is easy to exaggerate the depth to which Mithraism penetrated ancient society, in spite of Renan's dictum. Isis, denationalized somewhat and syncretized into unrecognizability, but still retaining much of her Egyptian external attributes, was a real competitor of Christianity, as Professor Müller admits (p. 242). One might add to the references he gives the famous passage of Apuleius, *Met.* XIII, i-vi, and such Greek papyri as that of Oxyrhyncus (*Ox. Pap.* XI, 1380).

It is to be hoped that this short treatise is the forerunner of a fuller systematic account of Egyptian religion and mythology.

MAX RADIN

AMERICA

Kutenai Tales. FRANZ BOAS. Together with texts collected by ALEXANDER FRANCIS CHAMBERLAIN. Bureau of American Ethnology, Bulletin 59, Washington, 1918.

Like most of Professor Boas's work, this volume contains far more than it seems to at first sight. There are nearly three hundred pages of mythology given in both Kutenai and English. Part of this is in interlineated text plus accompanying free translation in English. The larger half of the collection is in solid text, with the translation at once literal enough to be of service to the linguist and sufficiently idiomatic in English to be readable and of ready use to the mythological student. The inconspicuous indication in the English translation of the lines of the Indian makes possible a very close correspondence between the two versions for those who are interested, without disconcerting the reader who cares only about the substance of the story.

Thirty pages of abstracts and comparative notes set a new example for work of this kind. It has long been customary to accompany collections of Indian tales by summaries. Very often however these summaries have been of undue length. Then, comparative references have usually been appended to the tales themselves, instead of the summaries. Dr. Boas's abstracts are unusually compact. They gain farther by having the several versions of the same myth brought together, instead of following the accidental order of their presentation. The comparative references are added as footnotes to the abstracts, where of course they properly belong. They are very full, perhaps vir-

tually complete. It has too often been the practice for an author to insert allusions to such comparative material as he happened to be familiar with, and not to trouble himself to bring together that which was less conveniently assembled. An unusually concise method of reference allows Dr. Boas to list his comparisons both in brief compass and most usable form. Another device which helps is the indication, along the margin, of the page on which each episode of each abstracted myth occurs.

The last part of the volume is a vocabulary which consists of forty pages of Kutenai-English stems and grammatical elements, and thirty pages of English-Kutenai. While making no pretense at a formal presentation of the language, the character of the material in the Kutenai-English list is such as to make it clear that it contains most of the essentials for a grammar. Of course it need hardly be said the two vocabularies together permit of a quite searching analysis of the texts.

Altogether this publication sets a standard of masterly workmanship which can only be appreciated on examination. As a model of thoroughness, efficiency, and utility which cannot fail to be followed or at least striven after in future work along similar lines, it is certain to be of the utmost importance.

A. L. KROEBER

The Diegueño Ceremony of the Death Images. EDWARD H. DAVIS.
(Contributions from the Museum of the American Indian, Heye Foundation, vol. v, no. 2, pp. 1-33, pl. 1-5, 1919.)

Mr. Davis of Mesa Grande, well known for his long and intimate association with the Diegueño and adjacent tribes of "Mission Indians," has given in this paper the closest eye-witness description of what is easily the most important single ceremony of the southern half of native California, the mourning anniversary in its full form, with images representing the dead. His story makes more concrete our knowledge of this ritual as it is known from the accounts of Waterman and DuBois for the Diegueño and Luiseño, Stephen Powers for the Yokuts, and Dixon for the Maidu. Several features that characterize the ceremony wherever it is practiced in California indicate that it originated in the south and has spread northward. The attention bestowed by the Diegueño on the images—there is one for each deceased member of the "clan" holding the festival, whereas farther north only prominent people are honored with a figure—corroborates this inference. A number of new points are established by the author: as, the use of images by the Yuma, and the ceremonial recognition in the rite of hereditarily inimical clans—whose

part in the usages of the southern Californians more and more appears to have been surprisingly large. The Heye Museum is to be congratulated on obtaining through Mr. Davis a set of images which, inasmuch as they were made for an actual ceremony, although in a sense an artificial one, have less of the model about them than any in other museums.

A. L. KROEBER

The Aztec Ruin. EARL H. MORRIS. (Anthropological Papers of the American Museum of Natural History, vol. XXVI, pt. 1, pp. 1-108, 13 figures, 1919.)

This is a report on the material culture of the people who built what is now known as Aztec ruin in the Animas valley, San Juan drainage, northwestern New Mexico. It is based on the splendid series of specimens recovered in the excavations by the Museum expedition in 1916 and 1917. The author's writing is to be commended for compactness, lucidity, and sense of proportion. Every class of object found is mentioned, but never at undue length, and the significant traits are brought out quietly and deftly. The process of manufacture is neatly reconstructed so that the description never becomes mechanical. Mr. Morris's chronology allows for two periods of black-on-white pottery at Aztec, Chaco canyon, and Mesa Verde, plus an earlier pre-Pueblo or formative era at Mesa Verde. The latest of these periods of the upper San Juan region synchronizes with the first of the five established by Kidder and Nelson for the Rio Grande. This gives seven time strata for northern New Mexico, Aztec ruin falling into the third, the end of the black-on-white age in which the Pueblos were shifting across the continental divide from the San Juan to the Rio Grande.

The edifice itself is only cursorily touched upon, and as excavation was resumed in 1918 after the completion of this paper, farther publication is to be expected on the subject.

A. L. KROEBER

Eine geographische und ethnographische Analyse der materiellen Kultur zweier Indianerstämme in El Gran Chaco (Südamerika). ERLAND NORDENSKIÖLD. Vergleichende ethnographische Forschungen. 1. Göteborg, 1918.

Under this title we have a noteworthy analytic study based upon the facts of culture distribution in South America. The author takes as his specific problem the analysis of the material cultures of two Gran Chaco stocks, the Choroti and the Ashluslay, both of which were visited by him

in 1908. He sets himself the problem of determining just how much of the material cultures manifest among these stocks is original with them. He gives his answer in statistical form by tabulating the traits now observable that were introduced by white people. Under another head are grouped the traits derived from the Andean cultures. Again, there are traits attributed to the extreme south of the continent and others from the Amazon area. To attain these distinctions the author studies the distributions of each important trait separately: thus, we have chapters on houses, furniture, burden-bearing, hunting, weapons, fishing, costume, etc. There are some twenty of these chapters covering quite exhaustively the whole range of material traits. For each important trait a distribution map is given showing all the localities in South America where the trait is known to occur. In all, there are forty-four of these maps. A general perusal of these will of itself give an adequate idea of the continental ranges in material traits. For example, the map for finger-stamped pottery shows that it is localized around the La Plata drainage. What is the connection then, between this pottery and that of the Atlantic coast of North America? If they are historically related, how can their respective isolations be accounted for? Almost every one of the forty-four maps will be found equally stimulating

A number of striking parallels between the Chaco culture and that of the North American Plains have been noted before, but here we find some new ones, such as the use of a feather fan, forked-stick fire tongs, a particular form of hairbrush, and a hoof rattle. Aside from the pottery parallels just cited, we find the husking-peg of the Woodland Indians.

However, the author does not stop with the exposition of these trait distributions, but proceeds to compare and analyze them. In this way he readily isolates a number of traits that are peculiar to the Gran Chaco and so probably originated there. Of course, he does not attempt to explain the parallels to North American cultures we have cited, his attention being given exclusively to the South American continent. Thus he finds that out of a possible fifty-three traits the Chaco group can claim uniqueness in twenty-four. For the southern part of the continent there are twelve parallels out of a possible forty-four. From the Amazon area the number of parallels is small, the manioc complex, carrying appliances, and weaving are about all that one can be sure of. From the Andean region comes a long array of traits, thirty-five out of a possible fifty-eight; there is practical identity in clothing, ornamentation, and toilet traits, but also close parallels in agricultural traits, weapons, and handy tools. Finally, there is a residuum of traits as to whose origin no conclusion can

be drawn. These are, in the main, traits of very wide distribution in the New World, such as maize, bows, tobacco, bola, sling, fishing tackle, fire stones, gourds, tattooing, head deformation, pottery, etc. This is not really a failure of the method for its functioning depends upon our ability to isolate the respective distribution areas for the several traits. When the distributions are very extensive we must take the whole world as our comparative base and when the distribution is itself world-wide only archaeological evidence as to chronology will suffice.

Finally, the author applies the analytic method to Chaco culture itself, finding reason to believe that it was originally homogeneous with the hunting culture of Patagonia and that the later changes were largely due to the intrusion of traits from the north and the stimulus these conditions exerted upon the development of the Choroti and the Ashluslay stocks. Whatever may be the merits of this conclusion, the author deserves commendation for the precision of his method, and for presenting us with what is by far the best work on the distribution of South American traits.

CLARK WISSLER

The Central Arawaks. WILLIAM CURTIS FARABEE. (Anthropological Publications, vol. IX, University of Pennsylvania, The University Museum.) Philadelphia, 1918.

In "*The Central Arawaks*" we are given the first important publication after long years of travel and study in little-known parts of South America by Dr. William Curtis Farabee. The large tribe known as the Wapisianas is taken as the type of the group of Arawak tribes, that inhabit the Savannah country of British and Brazilian Guiana, at the heads of the Essequibo and Branco rivers. Other tribes are the Atarois, now absorbed by the Wapisianas, and the Tarumas and Mapidians, the last-named tribe being farthest removed from the routes of travel. Material and social culture, somatic characters and language are presented and there is, in addition, a long series of photographic plates, of fine quality.

The Central Arawak are a sedentary people who raise the manioc, maize, sweet potatoes, pumpkins, peppers, etc., of pre-Columbian days and the bananas, plantains, sugar cane, etc., that have been brought into the New World by the white man. They are also skilful hunters and fishers, using bows and arrows, spears, blowguns, etc., for game, and for fish a variety of interesting traps and poisons. One conical basket trap is so set on a springy pole that it flies upward out of water when a fish enters and the trigger is sprung. The poisoning of pools in the dry season

is a communal enterprise. A list of twenty-four poisons that stupefy fish is given for the Wapisianas alone. Canoe-making is seen at its best. The largest canoes are dug-outs with raised sides but light bark canoes are also used. Weaving includes baskets, hammocks, loin cloths, aprons, etc. Carrying baskets, sieves, and basket tubes are similar to those seen among the Carib Indians of British Honduras (formerly of the Island of St. Vincent) and are part and parcel of the widespread cassava complex, along with grating boards set with angular stones. Cotton is used in weaving cloth and hammocks as well as a number of other fibers. Pottery is made.

Lands are cleared at the end of the dry season and planted just before the beginning of the rains. The calendar is fixed by the rising of certain stars with the sun. Thus the first clearings begin with the heliacal rising of Orion, the last trees are felled when Sirius comes up and corn is planted when the Capabara constellation (Aries) is in the east. Star lore is pretty highly developed with all the tribes of the South American lowlands. The observation on heliacal risings gives, of course, an astronomical year. And yet there appears to have been no special knowledge of the movements of the planets (see also, Walter E. Roth, *Animism and Folk-Lore of the Guiana Indians*, *Thirtieth Annual Report, Bureau of American Ethnology*, pp. 260-261). The comparison that Dr. Farabee makes between the star groups of the Old World zodiac and the constellations known to the Wapisianas shows a number of correspondences.

It is to be regretted that a more detailed and analytical study of decoration was not given even if this subject had already been treated in popular fashion and for the entire Amazon region by Dr. Farabee.¹ A few hints regarding the archaeological remains that must exist in this region would also have been welcome. The Arawak appear to have been one of the great culture-bearing stocks and that they were not incapable of developing striking originality may be seen from their works in Porto Rico, Santo Domingo, and eastern Cuba. Some members of this stock occupied territory contiguous to peoples of high civilization in Peru and Colombia. It has been the fashion to disassociate the problems of language affiliation from those of culture affiliation, but no one can refuse to admit that tribes speaking languages of the same stock have an unavoidable historical bond. When these tribes are distributed over half a continent the historical questions involved become of prime importance.

¹ *Decorative Arts of the Amazon*, *The Museum Journal of the University of Pennsylvania*, vol. IX, pp. 59-71.

Among the Central Arawak marriage is exogamic as regards the village, but endogamic as regards the extended family, since a boy normally marries one or more of his cross-cousins. Civil organization is but slightly developed and there are no great chiefs. The medicine men have considerable power but religion is at low ebb as far as ceremonies are concerned. The mythology is rather full. Dr. Farabee closes his work with tables of somatic measurements and with word lists from the various dialects.

HERBERT J. SPINDEN

ASIA

The Turks of Central Asia in History and at the Present Day. An ethnological Inquiry into the Pan-Turanian Problem, and Bibliographical Material relating to the Early Turks and the Present Turks of Central Asia. M. A. CZAPLICKA. Oxford, Clarendon Press, 1918. 242, pp. 1 map.

The history and ethnology of the Turkish group of Central Asia belongs to the most complex and difficult problems of Asiatic history. Right from the beginning we are confronted with numerous, diversified tribes; and names and empires change almost from century to century. The best source-material is contained in the Chinese annals and other Chinese records,—the only available material for the knowledge of the early Turkish tribes. In the middle ages we receive as contemporaneous documents the Turkish inscriptions of the Orkhon and subsequently Arabic, Persian, Armenian, and Byzantine authors, with minor sources in Tibetan and Mongol. The discoveries of ancient ruins and manuscripts in Turkistan have completely overturned the knowledge of the preceding generation; but the largest portion of this new material is not yet elaborated, and for this reason and many others in addition no specialist would venture at this moment to write or to rewrite a history of the Turks. Meanwhile, however, there are several new facts standing out clearly. At the earliest time and down to the second century B.C., the great mass of Turkish tribes were settled in what is now southern Mongolia, and there exclusively. Their occupation of Turkistan was an act of gradual conquest and an accomplished fact only at the end of the fourth century A.D. Prior to the process of turkicization, Turkistan ("land of the Turks") was Iranistan ("land of the Iranians"), the bulk of the population being Iranians of various tribes, intermingled with other peoples of the Indo-European family, who spoke a language more closely related to the European than the Asiatic branch. For years our science

had suffered from the delusion of a once widely extended and powerful ancient Turkish civilization: this dream has been shattered since the new discoveries in Turkistan. This civilization, as the Iranian element in Turkistan was then not known, was ascribed to the Turks, but in fact must be credited to Iranians and other Indo-Europeans from whom the invading Turks simply adopted it. In Turkistan, the Turks merely appear as usurpers of an alien culture, and have hardly added anything new to it (cf. *Sino-Iranica*, p. 233). The former overvaluation of the historical importance of the Turks led to a sort of pan-Turkish movement in science, which peopled with Turks almost the whole of Asia and stamped as Turks, even without any reason, numerous tribes placed on record by the Chinese; many of this category, in fact, belong to the Iranian family. The name "Turk" as the designation of a tribal organization properly so-called first appears in the Chinese annals about the middle of the sixth century A.D. in the form T'u-kiüe (thus in modern Chinese), which is intended to transcribe a plural Türküt.¹ Simultaneously, the name "Turk" appears as Turushka in India. All previous speculations in regard to an earlier occurrence of this name in classical and Iranian literatures are failures, and must be rejected. Above all, the Persian name "Turan" is not connected at all with "Turks," phonetically or historically; on the contrary, the peoples of Turan were also of Iranian extraction. The contradistinction of Iran and Turan, first prominent in the Shāhnāme (completed in A.D. 1010), refers to the sedentary population of Iran proper and the nomadic tribes at the outskirts of and beyond Iran, who were likewise Iranians. To attribute the name "Turk" to the Avesta is an absurdity, as at the time of the Avesta there were no Turks within or anywhere close to Iran. The five-page notice of E. Blochet (*Le nom de Turc dans l'Avesta*) to which our author attributes so much importance, but which no one else has taken seriously, is nothing but a chain of errors and sophisms; the less said about it, the better. For the wrong application of the term "Turanian" with reference to Turks, Mongols, etc., we have to thank the poetic imagination of Max Müller; but I do not know that, as stated by the author, the term has become so deeply rooted in European books on Asia, that there seems to be no hope of abandoning it. I have pursued the literature of this subject for twenty-five years, and do not remember that during this period any reputable scholar ever spoke or wrote of Turanian languages or peoples. In fact, this term is generally tabooed. The establishment of

¹ Cf. Pelliot, *T'oung Pao*, 1915, p. 687, especially here referred to, as not utilized by the author and not cited in the bibliography.

a group of "Turanian Turks" (p. 47) appears to me unfortunate. If the modern political pan-Turkish movement, as the author assures us, mainly depends on this catchword "Turanian," it is surely as frail as a spider-web.

The scientific character of our journal forbids me to do justice to the political aspect of the book, and a discussion of this nature would hardly be compatible with my own taste, which does not relish politics. On the other hand, the political background of the book does not prevent me from appreciating what is good and useful in it. In fact, it contains much that is good, and there are many views and theories to which I am ready to subscribe. The author's observations on the *tamga*,—crests and property-marks of the families—and on the *uran* or war-cries, are as novel as interesting; and her exposé of the ethnography of the Turks is excellent and a valuable contribution to the subject, backed up by a wide reading in Russian literature. There is also a good, though brief, survey of the archaeology of Siberia, chiefly based on Tallgren's recent publication (*cf.* this volume, p. 78); and the author's conclusion appears to me right, that both the bronze-age and iron-age people of the Yenisei were of Turkish origin. Her assumption of Iranian influence on the culture of the Siberian bronze age likewise meets with my own views. The author does not attempt to reconstruct the original form of Turkish culture prior to Iranian contact; nor is there a discussion of such generally interesting problems as the share of Turkish tribes in the domestication of the horse and the camel, their influence on the development of costume, their rôle of cultural mediation between East and West (for instance, in the dissemination of cultivated plants and flowers), and their not insignificant position in the history of commerce.

The historical portion of the book is less satisfactory, chiefly because the author relies too much on "authorities," who in well-informed circles are hardly regarded as such. The etymologies and speculations of E. H. Parker and E. Blochet, for instance, are to be taken with utmost caution, and should better be disregarded by one who cannot check their statements in the original documents. An outcome of the pan-Turkism mentioned above was to claim the ancient Yüe-chi or Indo-Scythians as a member of the Turkish family. The author repeats this outgrown dogma, but tries to replace it by another no less fortunate. It seems to her that "they were a Tung-hu tribe surrounded by Turkic people, with whom the Chinese confused them" (p. 64). The Chinese are not guilty of any such confusion, and have never characterized the Yüe-chi as Tung-hu or as Turks. If the Chinese endeavored to conclude an alliance

with the Yüe-chi against the Hiung-nu, they did so for the very reason that, as they knew perfectly well, the Yüe-chi were a *genus humanum* radically distinct from Turkish hordes. In fact, the Yüe-chi, as well demonstrated by their culture and the scanty remains of their language, were Iranians, closely allied to their northern branch, Scythians and Sogdians. The Hakas, or as spelled by the author, Khakas, cited five times, have never existed, save in the imagination of some writers, and have been relegated to the scrap-heap for some time (*cf. T'oung Pao*, 1916, p. 370); this monstrosity is simply the result of the misreading of two Chinese characters which are intended to transcribe the name of the Kirgiz. The letters sent by the Mongol Khans of Persia to the King of France in 1289 and 1305 are not written in the Uigur language (p. 27), but in Mongol (*cf. Revue orientale*, 1907, p. 192); the alphabet used in these documents is identical with that of the Uigur. Under Uigur literature, the important fact of the discovery of Buddhistic writings in Uigur translations, several of which have already been edited, should have been worthy of mention. The statement that the Uigur are first mentioned in Ptolemy (p. 67) is somewhat surprising, but the name alleged to occur in Ptolemy is not given. Reference is made to "Serica, Liber IV, p. 16, 3." This is obviously a second-hand quotation; it is a common experience that hardly ninety per cent of those who quote Ptolemy have ever consulted or seen an edition of his works. Of course, Ptolemy has never written a book under the title *Serica*, but in his work on Geography, he devotes a chapter to Serica in Liber VI, ch. 16, while his Liber IV deals with the countries of northern Africa. Now, in that chapter, there is but one tribal name which an imaginative mind might correlate with the Uigur,—the Ithaguri; but for phonetic and geographical reasons, this identification would surely be impossible.

The bibliography which occupies more than half of the book is a valuable addition and testifies to great industry, though it is far from being complete. We miss, for instance, N. Pavlov's *History of Turkistan*, in Russian (Tashkent, 1910); K. Inostrantsev's critical bibliographical study of Hiung-nu and Huns (in *Zhivaya Starina*, 1900), and Pantusov's important investigation of the notices of Central Asia by the Arabic geographers (Kasan, 1909). Under the name of F. v. Schwarz, his *Alexander des Grossen Feldzüge in Turkestan*, which is also of ethnographical interest, should have been mentioned. Huth's decipherment of the Mahaban inscriptions is not referred to, but these monuments are important as the only relics we thus far have of the language from the empire of the so-called Western Turks. Schott's numerous contributions

to the subject are but very incompletely recorded. Of E. Drouin, a few reviews and minor articles are quoted, but not his *Mémoire sur les Huns Ephthalites* (*Le Muston*, 1895), nor his still valuable contributions to *La Grande Encyclopédie* (1894). Ujfalvy's *Mémoire sur les Huns Blancs* (1898), E. Blochet's *Inscriptions de Samarkand* (1897), and F. Grenard's *Specimens de la littérature moderne du Turkestan* (1899), would likewise be worthy of notice. J. Marquart's *Osteuropäische und Ostasiatische Streifzüge* (not noted) is a source-book of fundamental importance which no one interested in Turkish history can afford to neglect. Under R. Karutz, his book *Von Lübeck nach Kokand* (1904) and *Ethnographische Wandlungen in Turkestan* (*Archiv f. Anthropologie*, 1904) might have been added. J. Peisker, *Die älteren Beziehungen der Slaven zu Turko-Tartaren und Germanen* (1904), a very important study, should have been noted. K. Shiratori is not only the author of a paper on the inscription of Kül-tegin, but also of interesting studies of the Hiung-nu and Wu-sun languages. Chinese and Japanese literature is not placed on record. If the author had gone through the sets of our oriental journals (chiefly *Journal asiatique*, *T'oung Pao*, *Keleti Szemle* or *Revue orientale*), this would doubtless have resulted in numerous valuable additions. As the bibliography stands, it is serviceable only to a student who has some acquaintance with the field, and let us add, has access to Russian publications. In England and the United States such students are few, and even those who read Russian may lose the chance of a lifetime ever to be treated to the *Proceedings of the Turkestan Circle of the Friends of Archaeology of Tashkent* or to the *Memoirs of the Ural Society of Friends of Science of Yekaterinburg*. What the ordinary mortal and the student in quest of information need is a well-selected bibliography of pedagogical character, which may serve him as a guide, which tells him briefly what a book contains; what to read, and what not to read; or, what to read first, second, and third; or, what is essential, and what is of secondary importance. The author has the material and the ability to prepare such an educational book-list for the benefit of her own classes and others, and it is hoped that we shall be fortunate enough to receive it some day. For this scheme I would recommend to follow an arrangement according to subject-matter, as the student naturally is interested in problems, not in an alphabetic register of authors whose names he will hardly know; say, for example—prehistoric archaeology, historic archaeology (inscriptions, palaeography, *tamgas*, etc.), documents; and source-books of Turkish history (to be separated from general works or monographs on special subjects of history), racial history and physical

anthropology, social organization, folklore and literature (collection of texts, grammars, dictionaries, linguistic relationships, etc.), ethnographical materials, art (with a special chapter on rugs and rug-weaving, so important in Central Asia), etc.

Miss Czaplicka occupies a unique position among the ethnologists of England: she is the first who, on the basis of actual research in the field, endeavors to introduce there accurate knowledge of the peoples of Siberia. Her appointment as lecturer in ethnology in the School of Anthropology at the University of Oxford is a gratifying event. The mission assigned to her assuredly is important, and there is no doubt that she will continue to fulfill it to the best interest and for the true advancement of science.

B. LAUFER

The History of Philippine Civilization as reflected in Religious Nomenclature. A. L. KROEBER. Anthropological Papers, (American Museum of Natural History, vol. XIX, pt. II). New York, 1918.

In this paper Dr. Kroeber applies the statistical method to the analysis of religious words used by the several Philippine peoples, in order to determine to what extent they may shed light on the cultural relationships, for, he says,

A specific religious element held in common by two nations, is obviously the result of their having at some time come under a common cultural influence. Among such elements, names are the best indices. Rites or beliefs become modified, or may be only partially similar, so that information must be detailed before they can be adjudged as belonging to one or to more classes. Names, after their dialectic alteration is allowed for, are either the same or wholly different. Distinctly proper names, such as the designations of deities and ceremonies, are particularly valuable, since their original identity remains beyond suspicion even when their meaning changes radically.

As the first step in this study he analyzes the material given in Blumentritt's *Diccionario mitológico*, and finds that there are forty-three religious terms common to several Philippine tribes and groups. By expressing, in figures and tables, the terms shared by these groups he determines that:

(1) The Igorot group is sharply marked off from all other peoples on the islands. Practically all the terms shared by any Igorot tribe with any other tribe are shared with other Igorot tribes; and with them only. (2) All the other groups do not fall into well-defined classes. All seem to possess certain elements in common; the degree to which they share or fail to share these with each other is proportionate to their distances from each other.

A further study of the Blumentritt data confirms further the uniqueness of the Igorot group, but it is notable that the uniformity in their religious nomenclature is greater than in their religious conceptions or practices. Despite the fact that

their religious terms are almost all peculiar, their beliefs are much more similar to those of the other Filipinos, and their ceremonial acts very nearly identical.

It is also found that while the Igorot tribes tend to share proper names this is not the general condition as regards designations of rituals and ceremonial apparatus.

To the Blumentritt material Dr. Kroeber next adds the more recent data, in order to compile a list of the chief deities, the Igorot cycle of hero-gods, leading ceremonies, ritual motives and religious mechanisms—including in this division the altars, spirit-houses, omen birds, priests or mediums, and intoxicants used in ceremonies. From these considerations he finds

it is clear that nothing like any organized cult (other than Mohammedanism or Christianity) nor even a single ceremony as definitely unique as the Sun dance of the Plains or the Hamatsa of the Northwest Coast of America, is traceable through the Philippine Islands or any considerable portion of them.

While there is similarity throughout the Islands, it is still true that Filipino rituals have remained in the category of customs. They are not a part of a formulated system, nor are they at all the expression of "religion" in our sense of the term. This apparently is as true for the ancestors of the Christianized tribes as for the pagan groups.

The conclusion is therefore unavoidable that it is unlikely that any wave of Hindu or Asiatic propaganda, or even any direct Hindu cults as such, have ever reached the Philippines.

Influences have come to the Islands from India and possibly from the Mediterranean, but these have penetrated as disjunct fragments, not as organized wholes. The use of Chinese jars in religious ceremonies is considered as illuminative of the cultural relations of the Philippines in general. Despite the fact that they flowed in for centuries they did not affect either the color of native religion or the native pottery industry. They were used in a specifically native setting without any accompaniment or attached associations.

In the final section devoted to the native terms, the author considers Blumentritt's list of non-Malayan religious words common to several Philippine tribes. Five Sanskrit and one Mohammedan words are tabulated, and from their distribution he concludes

that Hindu influence direct enough to cause the introduction of Hindu nomenclature has not penetrated northern Luzon, but that over the remainder of the Islands it has been approximately uniform in strength.

Part II is devoted to comparative considerations, to determine how the findings from religious nomenclature will stand with reference to the broader findings regarding Philippine race, speech, and civilization generally.

As regards race, the author finds that aside from the Negrito, there are two types of brown people in the Philippines and that these types, while apparently rather closely related, are demonstrably distinct; and that their diffusion probably occurred in successive periods. To the earlier division he assigns the tentative names Indonesian, or primitive Malay, or less Mongoloid, and he finds that this type occurs in greatest purity among tribe after tribe in the mountain districts of northern Luzon, that is in

precisely the habitat of the pagan Igorot tribes which the foregoing discussion has shown to be the most unique of all Philippine peoples in their religious nomenclature.

The survey and classification of the languages does not reflect any line of division between Indonesian and Malayan types, or between Igorot and non-Igorot groups. It is evident that

something making for unusual diversification of speech has been at work in northern Luzon, while everywhere else in the Islands something tending to comparative uniformity with only minor local variability. In short, the evidence of language does not correlate well with that of racial type, but does partly correlate with the findings made in the field of religion in the present paper.

A survey of the culture results in the conclusion that it cannot be resolved into several distinct layers; it is possible, however, to make

a review of internal local relations which may correlate with our findings as to religion and language, even if they do not explain cultural significance of race movements or relate very closely to the main waves of culture influences.

The outstanding phases of Philippine ethnology are the fundamental unity of culture of all the peoples, coupled with an endless variety of irregularly localized detail.

The one fact of organization on a geographical basis that seems in any way to emerge conspicuously is the comparative separateness of northern Luzon.

To substantiate this claim, Dr. Kroeber tabulates fifteen instances in which the Igorot differ from the bulk of the tribes. Among these are, the absence of tooth-filing and blackening; the absence of blow-pipe,

armor, head-scarfs indicative of bravery, a native script and the barangay system of social organization. On the other hand the Igorot have almost exclusive claim to tattooing (except for the Bisaya), to the head-axe, to a distinctive type of shield, to head-hunting, and to true irrigation terraces. Hence it appears that a line of some cultural significance can be drawn between the Igorot and non-Igorot nations, much as it was in religious nomenclature and in speech.

The foregoing review can furnish only a glimpse of the many interesting questions raised, and the various methods of approach used by the author in this valuable paper.

His conclusions are, in general, those held by the reviewer, but the impression cannot be escaped that Dr. Kroeber has reached approximately correct results despite the fact that a considerable part of his material was very scanty and of doubtful accuracy. Given a good comparative dictionary and grammar of the various Philippine languages, and complete studies of the religious ideas and customs of the tribes under discussion, it is conceivable that the method employed in this paper might prove of great value as one method of approach to our problem. Unfortunately, such comparative studies do not exist at the present time. The *Diccionario mitológico* of Blumentritt is an assemblage of data from all sorts of sources, made by a compiler unfamiliar with the Philippines. As a result, his list of religious terms contains many words descriptive of some religious act or personage; while others without religious meaning may have been applied to some particular case in question. As examples of this, the following words, of quite general use throughout the archipelago, are selected from the list.

BLUMENTRITT DEFINITION	GENERAL USE
<i>balon</i> or <i>baon</i> ...boat offering to the dead	Provision for a journey.
<i>bayok</i>transvestite priest	A single woman beyond marriageable age.
<i>kabal</i>a charm or herb of invulnerability	Coat of mail, armor.
<i>laki</i>).....war god (Pangasinan)	Head man. Grandfather. Also
<i>apo-laki</i>).....mountain monster (Bikol)	used as term for God by Christianized Ilocano and Pangasinan.
<i>lmokon</i>omen bird	Turtle dove.
<i>tali</i> or).....a divination	Rope or cord. The prefix <i>pag-</i>
<i>pag-tali</i>).....	customarily denotes instrument.
	Divination by means of swinging objects suspended by cords is widespread in the Islands.

In this list of forty-three "religious" terms only two are credited to the Ilocano. Imperfect as is the reviewer's knowledge of this dialect he finds that it contains ten words of the list, and if we distribute these as Dr. Kroeber has done it appears that the Ilocano hold six in common with Mindanao, two with the Igorot, two with Pangasinan, six with Tagalog, two with Bikol, and six with Bisaya. Thus it would follow that this tribe residing at the northern end of Luzon is as closely related, in religious nomenclature, to Mindanao as it is to Visaya and Tagalog, and much closer than to the neighboring Igorot. A similar list might be just as readily compiled for the Bagobo or Mandaya, but these instances will serve to show the unreliability and incompleteness of the Blumentritt data.

Attention should also be called to the fact that, oftentimes, religious rites or personages are taken over without their original names, and they then appear under different titles which are generally descriptive. In such cases they can be recognized only by one familiar with the subjects and languages in question.

Again, religious names and terms may often be carried, by trade and other agencies, without their ordinary significance, and they then appear in their new setting without being in any way a reflection of borrowed religious ideas. Probably the best example of this is in the widespread use of our term for deity, used as an oath.

Throughout this study, the author has used the term "Igorot" to designate "the pagan mountaineers of northern Luzon other than Negritos." He, therefore, classes the Apayao Tinguian, and Kalinga with the Bontok and southern Igorot, Ifugao and probably Ilongot. This, in the opinion of the reviewer, is no more justified than it is to class all the pagan tribes of Mindanao in one group, or to treat the Christianized tribes as a unit. In a previous paper¹ attention has been called to the fact that, despite many differences, the first three groups mentioned fall into one class which can be opposed to the Igorot on grounds of physical type, language, religious customs, house building, and particularly of social organization. Attention was likewise called to the great similarity between Tinguian and Ilocano, and the opinion offered that they are but divisions of one people.² Further studies, soon to be published, tend still further to confirm this belief. A full discussion is not possible here, but it may be briefly stated that rice culture, spinning,

¹ F. C. Cole, Distribution of the non-Christian Tribes of Northwestern Luzon, *American Anthropologist*, N. S., vol. XI, 1911, p. 329.

² F. C. Cole, The Tinguian, *Phil. Jour. of Science*, vol. III, Sec. A, 1908, p. 197.

weaving, and other industries which on the surface appear very similar in the Tinguian—Ilocano, and Igorot groups, really show them to differ quite as markedly in material culture as they do in house building, social organization, religion and folklore. It should also be noted that some of the cultural considerations which caused Dr. Kroeber to separate the Igorot from the other Filipinos do not apply to the Tinguian. The people of this group do blacken the teeth, they do have the blow-gun, they do not have a kin group plan of society, and they make very little use of tattooing.

These and other considerations have led me to the conclusion that in northern Luzon we have evidence of at least two waves and periods of migration, the members of which are of similar physical type and language. It also appears that prior to their entry into this region they had developed or received social organizations and other elements of culture, very different from one another, and that they brought these with them and continued them in their present habitat.

If the term "Igorot" is confined to the people of Bontok, Lepanto-Bontok, and the Ifugao region, the uniqueness of this group may possibly be maintained, but if the Apayao, western Kalinga and Tinguian are added to this classification, the fundamental unity disappears and we are no longer justified in setting the Igorot, as a group, apart from the other Filipino.

Whatever may be our disagreement with certain portions of the paper, and our criticism of the material used, all workers in Malaysia will welcome Dr. Kroeber's new paper. It applies a method of handling data hitherto untried in Philippine research; it raises for discussion a number of new problems, and it also indicates a growing interest in the Islands on the part of our American scholars.

FAY-COOPER COLE

AFRICA

Harvard African Studies II; Varia Africana II. ORIC BATES, ed.
Cambridge, Mass., 1918. 12 + 324 pp., numerous pls. and text figs.

Together with its predecessor this volume forms a worthy monument to the zeal and generosity of its editor, whose death truly signifies an irreparable loss for the pursuit of African studies in this country. Except for linguistics, all phases of anthropology are represented, with ethnography clearly preponderating as to space and number of articles. Naturally it is possible to call attention to only a few of the more important papers.

The volume opens with Dr. G. A. Reisner's "Preliminary Report on the Harvard-Boston Excavations at Nûri: the Kings of Ethiopia after Tirhaqa" (pp. 1-64), a lavishly illustrated contribution which will doubtless commend itself to Egyptologists. It summarizes results secured during an expedition jointly financed by Harvard University and the Boston Museum of Fine Arts in 1916-1917. In "Certain Rites of Transition and the Conception of Nau among the Hottentots" (pp. 65-82) Mrs. A. W. Hoernle adds welcome details as to the usages and taboo notions of a people far too little known and rapidly approaching extinction or acculturation. The notes on menstrual customs are particularly interesting. In reproducing "Some Early Drawings of Hottentot Women" (pp. 83-99) Dr. E. A. Hooton adds certain general comments, especially on true steatopygia, which he holds "has been satisfactorily demonstrated in modern races only among the Bushmen and Hottentots." As to the Hottentot apron he categorically states that its "development is natural and not artificial." This remark seems to call for fuller substantiation in view of the widely prevalent belief that at least in part artificial deformation is involved in the phenomenon. Junod, to be sure, is not a physical anthropologist, but his information as to corresponding southern Bantu customs is so specific (*The Life of a South African Tribe*, I, pp. 183, 489) that it can hardly be ignored in a discussion of the subject.

An important monograph on a powerful group of Anglo-Egyptian camel nomads is presented in Dr. C. G. and Mrs. B. Z. Seligmann's "The Kabâbîsh, a Sudan Arab Tribe" (pp. 105-185). Predominantly of Arab stock, these people exhibit appreciable strains of Hamitic and even Negro blood. Their closest kin from a physical point of view are the Arabs of Northern Arabia and of Egypt. The authors' data on sociology are especially full and intrinsically significant. We find the mother-in-law taboo and other rules of avoidance, which as usual are viewed by the natives as signs of respect (pp. 126-128); teknonymy (p. 123 seq.); and marriage with the daughter of the paternal uncle as the orthodox form, that with the maternal uncle's daughter being a makeshift (p. 138). The high status of women in a tribe following Islam is worthy of note. Comparative remarks greatly enhance the value of what would be, even without them, a valuable descriptive account.

Dr. W. S. Ferguson's essay on "The Zulus and the Spartans: a Comparison of their Military Systems" (pp. 197-234) does not attempt any wild historical conjectures, as the title might suggest, though a detailed comparison of the Zulu and the Masai might be of greater in-

terest to the ethnographer. Dr. Ferguson succeeds in furnishing a very live picture of the Zulu system, for which all who have wrestled with the more than scattered Zulu literature will be profoundly grateful. A curious blunder occurs in this paper, inasmuch as the Masai are referred to as Bantu. This is certainly not the alternative to Merker's untenable hypothesis of a Semitic origin. According to Meinhof, Masai is a Hamitic tongue, a conclusion accepted by a discriminating critic as possible, though not demonstrated (Sapir, in *Current Anthropological Literature*, vol. II, 1913, pp. 25-27). At all events, Bantu affiliations, aside from some infiltration of Bantu blood, are definitely out of the question. "In East Africa," writes Sir Charles Eliot, "the Masai are clearly distinguished by their language, customs, and appearance from the Bantu races" (A. C. Hollis, *The Masai*, p. xi).

As an earnest of Continental coöperation there is an article by Professor A. Van Gennep (pp. 235-298), "*Recherches sur les poteries peintes de l'Afrique du Nord française (Tunisie, Algérie, Maroc).*" This paper consists of technological details regarding the pottery manufactured in a great number of North African centers, one locality being passed in review after another. In his conclusion the author calls attention to the intimate connection of the ceramic style of ornamentation with Berber decoration of woodwork, metal work, basketry, and weaving. He joins M. de Zeltner in recognizing that the ancient culture of Mediterranean Europe extended its sphere of influence far into Africa, profoundly affecting the industrial life and customs of the population as far south as the Senegal and Niger.

Every well-wisher of anthropology will hope that the splendid enterprise called into being by the lamented editor will find ample support ensuring continued publication.

ROBERT H. LOWIE

SOME NEW PUBLICATIONS

Barrett, S. A. *Myths of the Southern Sierra Miwok* (University of California Publications in American Archaeology and Ethnology, vol. 16, no. 1, pp. 1-28). Berkeley, 1919.

—. *The Wintun Hesi Ceremony* (University of California Publications in American Archaeology and Ethnology, vol. 14, no. 4, pp. 437-488, pls. 22-23, 3 figs.). Berkeley, March, 1919.

Colton, Harold Sellers. *Geography of Ruins near the San Francisco Mountains* (Bulletin of Geographical Society of Philadelphia, vol. XVI, no. 2, pp. 37-60). April, 1918.

Czaplicka, M. A. *The Turks of Central Asia in History and at the Present Day.* Oxford University Press, Oxford, 1918. 242 pp., map.

Dearborn, George Van Ness. *The Psychology of Clothing* (Psychological Monographs, vol. XXVI, no. 1, whole no. 112, pp. vi + 72.) Princeton, 1918.

Goddard, Pliny Earle. *Myths and Tales from the White Mountain Apache* (Anthropological Papers of the American Museum of Natural History, vol. XXIV, pt. II, pp. 87-139.) New York, 1919.

Heye, George G. *Certain Mounds in Haywood County, North Carolina* (Contributions from the Museum of the American Indian, Heye Foundation, vol. V, no. 3). New York, 1919. Pp. 35-43, 4 pls., 1 fig.

Heye, George G., Hodge, F. W., and Pepper G. H. *The Nacoochee Mound in Georgia* (Contributions from the Museum of the American Indian, Heye Foundation, vol. IV, no. 3). New York, 1918. 103 pp., 57 pls., 63 figs.

Kroeber, A. L. *Kinship in the Philippines* (Anthropological Papers of the American Museum of Natural History, vol. XIX, pt. III, pp. 69-84). New York, 1919.

Laufer, Berthold. *La Mandragore* (Extrait du T'oung-pao, 2 Serie, vol. XVIII, no. 1 et 2, Mars-Mai, 1917). Leiden, 1918. 30 pp.

Loud, Lewellyn L. *Ethnogeography and Archaeology of the Wiyot Territory* (University of California Publications in American Archaeology and Ethnology, vol. 14, no. 3, pp. 221-436, pls. 1-21, 15 figs.). Berkeley, 1918.

Lowie, Robert H. *The Matrilineal Complex* (University of California Publications in American Archaeology and Ethnology, vol. 16, no. 2, pp. 29-45). Berkeley, 1919.

—. *Myths and Traditions of the Crow Indians* (Anthropological Papers of the American Museum of Natural History, vol. XXV, part 1, pp. 1-308). New York, 1918.

Means, Philip Ainsworth. *Distribution and Use of Slings in Pre-Columbian America, with Descriptive Catalogue of Ancient Peruvian Slings in the United States National Museum* (Proceedings, U. S. National Museum, vol. 55, pp. 317-349, pls. 22-27). Washington, 1919.

Parkins, A. E. *The Indians of the Great Lakes Region and their Environment* (Geographical Review, vol. VI, pp. 504-512). New York, Dec., 1918.

Sapir, E. *An Ethnological Note on the "Whiskey Jack"* (The Ottawa Naturalist, 1918, vol. XXXII, no. 6, p. 116 seq).

Saville, Marshall H. A Letter of Pedro de Alvarado relating to his Expedition to Ecuador (Contributions from the Museum of the American Indian, Heye Foundation, vol. V, no. 1). New York, 1917. 6 pp., 1 pl.

Spier, Leslie. The Trenton Argillite Culture (Anthropological Papers of the American Museum of Natural History, vol. XXII, pt. IV). New York, 1918. pp. 167-226, 11 figs.

Wissler, Clark. Archaeology of the Polar Eskimo (Anthropological Papers of the American Museum of Natural History, vol. XXII, pt. III, pp. 105-166, figs. 1-33, 1 map). New York, 1918.

DISCUSSION AND CORRESPONDENCE

IDENTITY OF THE WESTO INDIANS

IN a recent number of the *Anthropologist*¹ Professor Verner W. Crane has placed on record some valuable discoveries relative to the Westo Indians who figure so prominently in early Carolina history, in particular his identification of this tribe with the Rickohockans who invaded Virginia in 1656, an identification which I cordially endorse. With his argument that the Westo were distinct from the Yuchi I do not, however, concur and for the following reasons.

Nowhere in the historical documents do the Yuchi appear under their own appellation, Tsoyaha, but under names either certainly or probably derived from other Indian tongues. Two of these besides the word Yuchi,—Tohogale, an Algonkian term, and Hogologe, of unknown origin but probably Muskhogean,—Professor Crane mentions himself. Therefore the employment of another distinct term, Westo, need not trouble us. It was probably applied by the coast Indians of southern South Carolina and is to be compared with the tribal names Stono and Edisto, from the same region. More important yet is the fact that two, and perhaps three, branches of the Yuchi were known to early historians and cartographers under distinct names. The Tennessee river Yuchi were almost always called by their Algonkian term Tohogale or Tohogaria; the Yuchi north of the present Augusta, Ga., about Uchee island, Hogologees, or Hog Logees; and those on Ogechee river by the name of that stream. The second of these is particularly noteworthy because, after the removal of this band of Yuchi to the Chattahoochee river it appears under its distinct name in spite of the fact that higher up is a Yuchi town so labelled. Therefore the fact that the Westo town is also distinct does not prove that the Westo and Yuchi were distinct peoples.

But there was still another appellation for the Yuchi, that given to them by the early Spanish writers, and first by the chroniclers of De Soto's expedition, the name Chisca. Proof of this rests on circumstantial evidence only, but that of the strongest. We have it first as of a people in the eastern mountains of Tennessee encountered by De Soto, Pardo, and Moyano, and we know that there was a Yuchi band there, occupying in later times a town called Tsistuyi, "Frog town," by the

¹ Vol. xx, pp. 331-337.

Cherokee, possibly a pun on Chisca, a town which the Cherokee destroyed about 1714.¹ The name occurs again as that of a "wandering people" who in 1639 were induced to locate on what is now Choctawhatchee river by one of the Florida governors,² and here a Yuchi tribe is known to have lived at a somewhat later period. They ultimately settled on Tallapoosa river not far from old Tukabachee town. Finally, in the Creek migration legend as recorded by Hawkins, Savannah river is called Chiska Talofa Hatchee, "Chisca town river." There is more evidence to the same effect which can not be set forth in full at this time, but if the identification is correct the following excerpt from a letter written by La Salle from the Illinois country about 1682 is of great significance. Speaking of the Tennessee river and the tribes living along it he says: "The Apalatchites, people of English Florida, are not far from some one of its most eastern branches, because they have war with the Tchataké (Cherokee) and the Cisca, one of whose villages they burned, aided by the English. The Ciscas then abandoned their former villages, which were much further east than those from which they have come here."³ He mentions the Chisca in a later communication as one of the tribes which he had assembled about Ft. St. Louis (near the present Utica, Ill.).⁴ As no war of consequence was waged by the Carolina settlers just before this date other than that on the Westo, and as there is independent evidence that the Cisca or Chisca were Yuchi, does not this reference add great strength to the argument for a Yuclean affiliation of the people called Westo?

The following letter from Governor D. Alonso de Aranguiz y Cotes, dated Sept. 8, 1662, is important because it seems to contain a record of the invasion of Spanish territory by the Rickohockans or Westo after they had been driven from Virginia, six years before. He says:

In a letter of Nov. 8, of the past year, 1661, I recounted to Y. M. how in the province of Goale, near this presidio, there had entered some Indians who were said to be Chicumecos which ate human flesh, and if I had not assisted in opposing their design they would have destroyed it, as I had news regarding others from Infidel Indians who came fleeing from them, and as I saw that they would retire by the way they came I made examinations and inquiries in different directions until I took four prisoners near the province of Apalachecole which is a hundred and eighty leagues distant from this presidio. Having sent infantry for

¹ Colonial Documents of South Carolina, MS.

² Serrano y Sanz, Documentary History, p. 199.

³ Pierre Margry, Découvertes et Établissements des Français dans l'Ouest et dans le Sud de l'Amérique Septentrionale (1614-1754), vol. II, p. 197 (1877).

⁴ *Ibid.*, p. 318.

the purpose I took some Indians of the Chisca nation to serve as interpreters of their language because there was no one in these provinces who could understand them, and they said they were from Jacan, that when they retired from the province of Goale they went to that of Tama and to that of Catufa, and that there they wandered about in different bands, and the said Chisca Indians, after having explained what people they were said that very near the lands of those people there was only one very large river, on the middle course of which had fortified themselves a nation of white people who warred with them continually and were approaching these provinces and they do not know whether they are Spaniards or English.¹

It is to be noticed that though they are referred to as distinct from the Chisca, the Chisca are called in as interpreters, and Yuchi is certainly no nearer Mohawk than any of the other southeastern languages. My own solution is that the people called Chisca, who were appealed to as interpreters, represented an earlier wave of Yuchi immigration and the wandering people who appeared in 1661 a later immigration of tribes linguistically related, the bands known otherwise as Rickohockans and Westo.

If the Chisca were Yuchi, Spanish documents prove that they had penetrated as far as Florida long before 1670, and this answers Professor Crane's first objection to the position taken by Dr. Speck and myself. To his second objection, that there is documentary evidence that none of the Westo remained in South Carolina after 1681 I would reply that I do not contend that the term Westo was applied to all Yuchi any more than the term Hogologiee was always applied to all of them. It is perfectly evident that such was not the case. I will go farther and concede that the settlement of the people later called Yuchi and Hogologiee *may have been* subsequent to the expulsion of the Westo in 1681. My contention is that the Westo were a Yuchi tribe, not that the name was necessarily applied to all Yuchi. The historical documents indicate to me very strongly, if they do not absolutely prove, that the Chisca mentioned by the Spaniards were Yuchi, and that the Cisca of La Salle were the Chisca of the Spaniards and the Westo of the English. The statement cited by Professor Crane that the Mohawks were "strictly aleyed to the Westos" I think should be taken in a political, not in an ethnic or linguistic sense.

While I believe the facts favor the conclusion arrived at by Dr. Speck and myself and consider it more satisfying to identify a tribe with something known than to leave it as a mystery I have no deeply seated

¹ Lowery MSS.

prejudice against an Iroquoian identification of the Westo if facts are produced to establish it. Although I have found that a careful sifting of material leaves very few mysteries in the classification of tribes, some such mysteries do remain. One of these in particular I will mention in hopes that Professor Crane or some other investigator may be able to furnish the solution. This is the identity of a tribe called Tamahita, which figures most prominently in a letter written by Abraham Wood to John Richards, Aug. 22, 1674, detailing the travels of James Needham and the—real or supposed—travels of Gabriell Arthur. The tribe was then in a stockaded town on the upper Tennessee. Some years later they turn up among the Lower Creeks, and a part of them at least lived for a time among the Upper Creeks. The memory of such a tribe, confounded however with the Timucua of Florida, was preserved among some of the Creek Indians up to a few years ago. They may have been Yuchi, Cherokee, or possibly, if the Westo were not Yuchi, identical with that tribe. A key to the solution of the problem presented by them has yet to be found.

JOHN R. SWANTON

BUREAU OF AMERICAN ETHNOLOGY,
WASHINGTON, D. C.

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PROFESSOR G. E. HALE,
President National Research Council,
Washington, D. C.

NEW YORK CITY,
March 6, 1919.

My dear Professor Hale: At the meeting of the American Anthropological Association held in Baltimore, December 27, Professor J. C. Merriam, representing the National Research Council, made a formal statement of the plans of the Council in regard to the organization of science, and requested an expression of opinion on the part of the American Anthropological Association in regard to the position of anthropology in the work of the National Research Council.

In consequence of this request and the discussion following it, the undersigned were appointed a committee for the purpose of giving to the National Research Council information in regard to the work actually done by American anthropologists. A statement has been added pointing out the causes for the slow development of certain branches of anthropology.

The committee submitted a number of questions to American anthropologists and attached to this are a number of replies to our circular letter.

The general tendency of the scientific work of American anthropologists may briefly be summarized as follows: It is but natural that in a

country like our own, which contains the remains of a considerable number of primitive people, the historical interest in the aborigines, combined with the ease of accessibility of the remnants of the ancient tribes, should bring it about that inquiries relating to their customs, languages, and physical types should dominate American anthropological research, and that theoretical work should be based very largely upon the results obtained from a study of American tribes. The methods which give the easiest results in regard to these problems are archaeological, ethnographical, and linguistic and for this reason these three lines of inquiry have hitherto predominated in the research work of American anthropologists.

At the same time the necessity for a broader outlook is keenly felt. The Field Museum of Natural History has included in the scope of its work eastern Asia, Malaysia, and Melanesia. Harvard University has expanded its work over Africa. The University of Pennsylvania has undertaken research work in South America, the American Museum of Natural History and the United States National Museum, in Asia, and a few other attempts of similar kind for obtaining a wider basis for research in cultural history may be noted.

The field of work of American anthropologists is also in part determined by the character of the institutions that maintain anthropological work. The Bureau of American Ethnology which forms part of the Smithsonian Institution is by law restricted to work on the natives of America and the Hawaiian islands. Most positions held by working anthropologists are museum positions, and consequently the scientific work is largely restricted to those aspects of anthropology that yield tangible specimens. University positions are on the whole of such a character that the funds necessary for the conduct of field work are not supplied by the universities, but if available at all, come from museums.

Anthropologists have felt for a long time that their work needs expansion, and many attempts have been made to free anthropological research from the restrictions dependent upon the association of anthropological work with museums on the one hand, and from those conditions that tend to give undue preponderance to work on American Indians on the other hand. Attempts have been made particularly to direct attention to African problems, which are of importance to us on account of our large negro population, and also to investigations on racial anthropology among the white and negro populations of the United States. Work of this kind needs financial support, but all attempts have failed to interest the government institutions which command considerable funds, or private individuals, to support work of this kind. There is a

peculiar hesitancy in regard to undertakings of this type, which will not be overcome until more work on a smaller scale has been done. Investigations of this description have been undertaken by American anthropologists and by educators, sociologists, and medical men with anthropological leanings. Recently, biologists have also directed their attention to this subject, but methods applied and results obtained up to this time are quite unsatisfactory. Work on human paleontology is also not vigorously pursued.

The difficulty of giving anthropological research an adequate position in the scheme of the National Research Council is largely based on the fact that the humanities find no place in the general scheme of work of the Research Council. While anthropology must necessarily be based on the one hand on biological science, on the other hand it is intimately associated with the humanities. It is impossible to treat even the biological problems of anthropology without a due regard to the cultural aspect of anthropology, because the forces which determine the development of human types are to a very large extent cultural forces.

The peculiar position of anthropology brings about close contact with a great many different sciences,—biology, geology, paleontology, geography, psychology, history, linguistics, and the whole range of humanities. Coöperation will be necessary according to the particular type of problems taken up, and anthropology will be best served by an entirely free association with different subjects, according to the need of each case.

It is the opinion of the undersigned committee that the appointment of a director of anthropological work, who would have a dominant influence over organized work, would not be helpful on account of the great diversity of subject matter included in anthropology, and might prove decidedly prejudicial on account of the necessity of developing this subject in different directions. Much better results would undoubtedly be obtained by regular meetings of representative scientists, and by the appointment of a secretary who would carry out the necessary clerical work.

Yours very respectfully,

(Signed). FRANZ BOAS, *Chairman*,
ALEŠ HRDLIČKA,
ALFRED M. TOZZER

ANTHROPOLOGICAL NOTES

PROFESSOR ROLAND B. DIXON, Dr. Charles Peabody, and Dr. William Curtis Farabee, Anthropologists in attendance at the Peace Congress in Paris, were honored by election to French societies, as follows: "Membre Correspondant de l'Association pour l'enseignement des sciences anthropologiques" and also "Membre Associé étranger de la Société d'Anthropologie de Paris."

DR. WILLIAM CURTIS FARABEE has been elected a member of the American Philosophical Society of Philadelphia.

THE Anthropological Society of Philadelphia with the May meeting closed a very successful season. The Society has steadily grown to a present active membership of twenty-six and a mailing list of twenty-two. Dr. W. W. Hyde, Professor of Ancient History and Greek, University of Pennsylvania, is President; Dr. F. G. Speck of the Department of Anthropology is Chairman of the Executive Committee; E. P. Wilkins is Secretary-Treasurer; and R. T. Aitken is Assistant.

Subjects of Papers 1918-19:

- "Man as a Species of Mammalian Fauna," Dr. Spencer Trotter.
- "Mendelism as an Explanatory of Mimicry," Dr. Phineas W. Whiting.
- "Primitive Property Rights," Dr. Robert H. Lowie.
- "Some Biblical Texts Illustrating Ancient Trade Routes," Dr. Wilfred H. Schoff.
- "The Change of Mind about the Earth," Hon. Gifford Pinchot.
- "The Origin of Symbols," Wm. L. Tolan.

MR. A. M. HOCART has been appointed to an archaeological commissionership in Ceylon. Before entering upon his duties he will spend a year at Exeter College, Oxford.

DR. JOHN SWANTON, during the spring, was engaged in fieldwork among the Indians of Oklahoma. He has practically completed his investigations on the social organization of the Choctaw and Chickasaw Indians. He visited Anadarko to ascertain the present condition of the Caddoan tribes in that neighborhood and discovered that the language of the Kichai Indians is verging on extinction. The necessity for taking prompt action to preserve a record of this language is imperative.

IN order to increase local interest in the science of anthropology, Dr. J. Walter Fewkes, on his recent trip to Austin, Texas, gave four lectures to classes in the University of Texas. Three of these lectures described "The Hopi Snake Dance" and the fourth "The Aborigines of Porto Rico, West Indies." He also gave two illustrated lectures to the general public, entitled, "The Indian as a Stone Mason" and "The Mesa Verde National Park."

DR. WALTER HOUGH of the United States National Museum spent the latter part of May and the month of June in a continuation of his ethnological and archaeological work in the White Mountain reservation and westward into Arizona.

MR. FRANCIS LAFLESCHE returned in May from the field in Oklahoma where he has been carrying on his investigations among the Osage Indians.

MR. J. N. B. HEWITT was engaged in fieldwork among the Iroquois during the months of May and June.

MR. J. P. HARRINGTON returned early in June from the field after an absence of eleven months in which he accumulated a large amount of linguistic material in Oklahoma, New Mexico, and California.

MRS. J. P. HARRINGTON, who is a trained ethnologist, stenographer, and typist, accompanied her husband and was of great help in his work. She remained at Taos, New Mexico, to check up some of the results.

ON June 3, Dr. Aleš Hrdlička, Curator of the Division of Physical Anthropology, visited New York for the purpose of attending a meeting of citizens interested in the problems of immigration. The main topic discussed was "What can be done by men of science and students of social questions to effectively assist the existing agencies, including the Congress, that deal with immigration?" These agencies are now called upon to solve or adjust the knotty problems of immigration and emigration; tasks which are steadily growing in number and importance. A committee was named which is to outline, so far as possible, the whole scope of the question and to suggest means for its consideration and effective treatment.

PROFESSOR J. E. PEARCE, of the University of Texas, has been doing important archaeological work for the Bureau of American Ethnology on a village site at Dry Creek, four miles from Austin, Texas. A number of characteristic artifacts have been obtained.

MR. GERARD FOWKE is making important archaeological excavations in Miller Cave, Pulaski county, Missouri, with an allotment from the Bureau of American Ethnology. The cave floor measures 85 by 65 feet and he has already penetrated the layer of ashes to the depth of 12 feet. The results of the work thus far accomplished (and a beginning only has been made) promise valuable results as the ashes are removed.

PROFESSOR A. L. KROEBER has been appointed full Professor in the Department of Anthropology at the University of California. Professor Kroeber has been the head of that department since the retirement of Professor Putnam in 1902, and almost solely responsible for the development of the instruction in anthropology in that institution and for the series of publications as well as the research work which lies behind them.

DR. PAUL RADIN has been appointed Assistant Professor in the same department.

MR. LESLIE SPIER has been granted a leave of absence from the American Museum of Natural History until June 30, 1920. He has been appointed Cutting Traveling Fellow by Columbia University. Mr. Spier will devote the year provided by the fellowship to a continuation of his work among the Yuman peoples of Arizona.

DR. CLARK WISSLER visited, during June and July, the ruin Aztec near a town of that name in New Mexico. He inspected the work which has been done there by the American Museum of Natural History and arranged for its continuance.

MR. ROBERT T. AITKEN has been appointed to a position in the Milwaukee Museum made vacant by the resignation of Dr. E. W. Hawkes.

MISS HELEN C. GUNSAULUS has been appointed Assistant Curator of Japanese Ethnology in the Department of Anthropology in the Field Museum of Natural History, Chicago.

American Anthropologist

NEW SERIES

VOL. 21

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No. 3

INDIAN MOUNDS AND OTHER RELICS OF INDIAN LIFE IN TEXAS¹

By J. E. PEARCE

THE archaeology and ethnology of the Texas Indians have been almost wholly neglected by the state and people of Texas and by the federal government, as well. This fact, considering the interest taken in like matters in other states and in progressive parts of the world generally, is quite remarkable and requires some explanation before the subject of this paper can be properly dealt with. Furthermore, no museums or institutions of learning in this country or other lands have made any investigations worth while in Texas in either field.

The neglect of the field by the federal government is to be accounted for doubtless on two counts. In the first place, when Texas came into the Union, she was an independent nation. She entered by a treaty made with the U. S. government and the treaty left to Texas the ownership and control of all public lands in the state. With the possession of public lands went the control of all Indians on those lands. Indian problems in Texas after 1848 were therefore state problems. It followed naturally that the federal government took no interest in Indian problems of any sort within the state. Later agreements between the state and the federal governments, together with the sharp wars waged upon Indians in Texas, led to many Indians being transferred or driven from Texas to New Mexico or the Indian Territory, and in these regions they passed of course under federal tutelage. Some were driven by the

¹ Read before the American Anthropological Association at the Baltimore Meeting, 1918.

Texans into Mexico and dismissed from mind. The few that remained in Texas, now only about seven hundred in number, have continued under state control. At present they are taken no special notice of by state authorities and are on the same footing before the law as whites. The Alibamu Indians, of Polk county, number about two hundred and still have their tribal organization, which the state does not in any way recognize. The remaining five hundred are without tribal organization, so far as the writer knows, and are known as Indians only because they report themselves as such to the census enumerators.

Then again, to get together an adequate account of Texas Indians it is necessary to go back to the old Spanish and French mission and governmental records. These, until recently, have been largely in the church and state archives of Mexico, Spain, and France, and have not, therefore, been very accessible. So large is the mass of letters and official papers in the state and church archives in Mexico, in which are to be found the sources of South-western history, and so, the first descriptions of Texas Indians, that it has been and still is an Herculean task to sift it and to get out the essential parts.

The Anglo-American element of Texas has never taken any interest worth mentioning in Texas Indians, except in a hostile and negative way. The Indians, after the establishment of the Saxon settlements, were dealt with by the colonists from the United States, and by the citizens of the state later, in a manner quite English. They were always thought of as unteachable savages, feared when they were comparatively strong and regarded as a nuisance under all circumstances. So there were no Indian problems in Texas except the problem of killing or driving out the natives. The result was that virtually all Indians in the state were either killed or driven into Mexico, New Mexico, or the Indian Territory.

The exception to this general statement is to be found in the efforts of Sam Houston at establishing a kindly, conciliatory policy towards Texas Indians. He had lived for years among the Cherokee before coming to Texas and was always and everywhere the champion of the Indians against unjust encroachments of whites.

He advocated, in the days of the Republic of Texas, the establishment of reservations for the Indian population, with schools and efforts, generally, at education and conciliation. He was opposed in his plans for the Indians by Lamar, who had come from Georgia, where he had witnessed the notorious struggle between the white settlers of that state and the Cherokee, the latter backed by the federal government. Lamar had become embittered and prejudiced against Indians, as a consequence, and in Texas advocated their extermination or expulsion from the regions desired by the whites. This policy fell in with the temperament and mood of the Anglo-Americans and prevailed. The inveterate wildness of the Comanche and Apache, together with their eagerness to get the white man's horses and the resultant perpetual horse stealing, for which they were notorious, would have made a kindly handling of them almost impossible, even if early Texans had been gentle in temperament and eager to teach and civilize a backward people. This was far from being the case. The early Texans were, generally speaking, among the hardiest and most ruthless of the American frontier type and horse stealing was among them the greatest possible crime regardless of the race or other qualities of the thief.

Even Houston was compelled to make war repeatedly on the Comanche; and the Apache had been, from the earliest white contacts with them until they were utterly broken, the "veritable Ishmaelites of the plains," to use Bolton's phrase. The French and Spaniards, whose Indian policy in the Southwest was generally one of peaceful penetration and trade, or of mission settlement and civilization by teaching, could never make friends of nor arrive at a permanent peace with either.

The result was, not only wars of extermination against the Indian while the latter was a menace, but an utter indifference, until recently at least, to everything Indian.

The Texas State University, the University of California, and the Library of Congress have been working jointly, in recent years, at getting out of Mexico copies of the manuscripts that bear upon Southwestern history. Each institution gets a copy of every manuscript obtained. Incidentally much that concerned the

Indians has been brought out in these documents, but ethnography should have been represented with history in all efforts at getting manuscripts out of Mexico.

Dr. Bolton, of the University of California, has put together the accounts of Texas Indians, which he has come across in his study of Southwestern history, to make the historical introduction to his two volume work entitled "Athanas de Mezieres."

This introduction constitutes the best published account, to the present time, of the Texas Indian tribes. In this account kinship, language, and confederation relations are dealt with, but there is very meager discussion of Indian culture and manners.

Brief accounts of Texas Indian tribes and groups, written largely by Swanton and Bolton, are to be found in *The Handbook of American Indians*¹ and Dr. Swanton's monograph entitled "Linguistic Position of the Tribes of Southern Texas and Northeastern Mexico"² deals with some of the language problems.

II.

Texas Indian archaeology, as stated, has never been systematically investigated by any institution or authority whatsoever. The facts which the writer is able to set forth in the following account of Indian remains in Texas, he has gathered in his travels over the state, by personal observation, by inquiry of reliable individuals—some geologists of the State University and of the former State Geological Survey, some railroad engineers, some amateur collectors of Indian relics, some simply intelligent private citizens—and, for the last five years, by meager personal field labor mainly near Austin.

The state may be divided, for purposes of this account, into five districts, each of which will be dealt with in turn, beginning with the easternmost.

The east Texas district comprises the pine forest area from the Sabine river to, generally speaking, the 96th parallel. The soil is generally red clay, covered with sand or vegetable mould and the whole region is covered with heavy forests of pines and hardwoods.

¹ *Bulletin 30, Bureau of American Ethnology*, 1907.

² *American Anthropologist*, N.S., vol. XVII, pp. 17-40, 1915.

Throughout this region are many Indian mounds made up of red clay and sand, and varying in size from a few inches in height and ten feet across to twenty-five feet in height—the writer knows of one that high, others may be higher—and fifty to seventy-five feet across. As many of them are covered with large trees, they are not always easily recognized and many large ones may exist in this region that have not yet been noted.

The smaller ones often cover circular pits of various depths to as much as two feet and were doubtless sites of earth lodges, which being partly constructed underground, required less labor and material for superstructure.

The larger ones often contain skeletons, clay pots, and flint implements. Near Rusk, five skeletons were found in one, which was cut through in excavating for a railway. These were twenty-five feet beneath the surface of the mound. Each skeleton was prone and in the circle of the left arm of each was an earthen jar.

Most of these mounds are of a fairly symmetrical, conical shape; some are irregular in form. They are very numerous, according to Bolton, along the Red river above Texarkana. They are usually near streams, large or small, and an eye practised in erosion effects can pick them out by the fact that they often occupy positions which make it impossible for them to have been formed by erosion.

There are underground chambers reputed to be of Indian origin in a clay and rock bluff near Jacksonville, but as this is in a region of one time intensive Spanish mission activity, the writer feels sure that they are of Spanish origin. The retaining walls of stone within the earthen chambers are of too high a quality to have been made by undirected Indians.

The second region consists of the immediate shores of the Gulf and its inland bays, including the tide waters of the creeks and bayous. Here are found immense beds of shells of the oyster and other shellfish. These beds are often ten or more feet in depth and in places extend along the banks and shores for miles. The shell is often used for dressing highways and ballasting railroads, so extensive are the deposits. A railroad engineer of repute told the writer that, in excavating shell for railroad building, he often

found arrowheads, axes and other Indian artifacts. None of these has ever been investigated, so far as the writer knows, by an anthropologist.

The third district consists of the prairie black land region of the state, lying between the east Texas timbered region and the edge of the Edwards plateau, in the south, and the Grand Central plain, in the north. This plain, the northern portion of which is called the Grand Prairie, is separated from the elevated plateau to the west, in the southern part, by the Balcones fault, running from Del Rio by San Antonio to Austin and, from this point north-westward, around the west edge of the Grand Prairie, by an erosion escarpment which runs forty miles west of Fort Worth to the Red river. Fort Worth, Austin, and San Antonio are all on the western edge of this plain.

In the northern portion of this black land region of "rolling prairies," Indian relics of all kinds are rare except on the western edge near the rocky escarpment, and along the rivers that run across the prairie from west to east. The writer grew up on a black land farm in Hunt county and never found an Indian arrowhead in all his youth.

In much of this region there is no flint for making weapons or tools. Furthermore, hunting by primitive man, without horses, in such a region could not have been very profitable. In the southern portion of this district, below Austin, the land is somewhat more broken and flint is abundant, so that artifacts of flint are numerous. The more broken nature of the country, together with the presence of cactus and chaparral, made hunting easy and profitable.

Along the line of the Balcones fault, between the black land prairies and the limestone region of the Edwards plateau, are numerous mounds and great numbers of artifacts. Out of this fault come up numerous great springs, some of which are the sources of considerable rivers, as the San Marcos, at San Marcos, and the Comal at New Braunfels. From this fault to the west the limestone contains numerous flint nodules and flint deposits, in flattened disk-like form, much of it ideal for making flint implements. This

limestone region of low hills is covered with juniper, live oak, cat-claw, and other scrubby trees and shrubs, which afforded shelter and food for game. At the same time it afforded an ideal cover for the hunter and wood in abundance for his fires. The Indian tribes of central Texas who, it seems, had never developed any agriculture worth while to the time of the white man's coming, found the region of the fault line a hunter's paradise and undoubtedly clung to it continuously and existed in larger numbers near it than elsewhere in the central regions.

Near the springs that come out of the fault, and along the streams crossing it, are numerous Indian mounds, which the writer has explored to considerable extent, and which will now be described in detail.

There are four of these mounds in a line along the bank of a small creek near Round Rock, twenty miles north of Austin. These are typical and a description of them will suffice for all of the kind.

The writer has explored one of these mounds carefully and has moved more than half of the materials in it.

The one explored was about three and a half feet high, forty feet in diameter, the short way, by fifty-three the other way, and was of a rounded spherical shape.

Its contents were:

1. Small pieces of angular sharp-edged lime rock which showed signs of fire.
2. The black earth of the region in small attenuated quantities and mixed with soot.
3. Soot and occasional pieces of charcoal.
4. Many pieces of broken flint, slivers, and rejects from the manufacture of flint implements.
5. Large quantities of snail shells of the genus *Bulimulus*. Some of these were pierced with small holes suggestive of necklaces.
6. Many flint artifacts consisting of:
 - a. Arrowheads.
 - b. Spearheads.
 - c. Axes.

d. Scrapers.

e. Drills.

7. One flat discoid skin polisher or muller stone of a quality of stone not found in the region.

8. On the ground at the bottom of the mound, numerous large slabs of limestone laid more or less as if they had been placed beside bodies that had been buried. The resulting spaces resembled rude sarcophagi, but no skeletons were found in them. In the center of the mound was a rectangular box of such slabs extending from the ground through the top of the mound. This box had been dug into and cleaned out by the owner of the land on which the mound is located, his curiosity having been aroused by the projecting slabs. He told the writer that the contents of the box were identical with those of the rest of the mound except that he had found many arrowheads within the box.

9. A few fragments of bones, some of which may be human, but they were so fragmentary that the writer could not identify them positively.

Mounds of this type, always made up mainly of broken limestone, and, in parts of the west, containing no soil whatever, exist in great numbers from the Balcones fault line westward into New Mexico, and from the Panhandle into Mexico. There are many of them in western Travis county, near Austin, and literally thousands of them in the state altogether. The rock materials may vary with the nature of the rock outcrop of the region. In sandstone regions they are of sandstone.

The general contents of the mounds force the conclusion that they are largely kitchen-middens in origin. Limestone slabs were probably placed about fires to keep the fire together and for cooking and boiling water. After being heated a few times, a rain would cause them to break into small fragments that were no longer serviceable. These were then thrown back in a heap and new slabs placed in and about the fire. To the heap was also added the rejects and fragments from the making of flint implements.

As the mounds grew they would naturally serve excellently for burial places, and undoubtedly some of them were so used. One

nearly complete skeleton was found in a mound near Liberty Hill, Williamson county, by Dr. Carr Mankin, and the writer has heard of human bones found in other mounds.

The fourth district consists of the region from the Balcones fault and the edge of the Grand Prairies to the Pecos and the New Mexico line. This region is characterized almost throughout by the mounds just described but in the far west they have an added peculiarity, *viz.*, a central depression. Often the mounds in those parts are perfect circles with circular depressions in the middle, sometimes they are elliptical with a trench-like depression. This suggests very strongly that the stones and earth of the kitchen middens were used after sufficient accumulation, to make earth-lodges. The absence of earth and fine stone particles in these mounds would imply that the broken rock had been rehandled, which suggests further the idea of their having been used in making lodges. No other primitive house could have been so comfortable on the bleak plains, swept in winter by the sharp northers or blizzards, as the stone and earth lodge. The writer has not investigated these mounds in the far west but has had good first-hand accounts of them from intelligent residents and travelers in those regions.

The fifth region, the Trans-Pecos, is characterized by the same mounds as those in the fourth district but has other features in addition. Throughout this region are found evidences of Pueblo influence in attenuated form. Metates, of various shapes, and muller stones are found, and the *Mescaleros*, as the Mexicans call them, are omnipresent about the waterholes. These are rounded bullet-like holes, from three to eight inches across, and from a mere depression to twelve or more inches in depth. They were for grinding the mesquite beans into meal. Perfectly circular disk-like stones, three to four inches in diameter and from one half inch to two or more inches in thickness, and with faces sometimes convex, sometimes concave, are found throughout the Big Bend country. These were used sometimes for mullers and sometimes for polishing dressed skins. One was found in the mound explored at Round Rock but no metates have as yet been found in the region of central Texas. Furthermore, old settlers in Texas tell of having seen the Indians polish skins with round disks of coarse porous stone.

In this Trans-Pecos region are found dykes and banks that will almost surely prove, upon investigation, to be remains of old irrigation plants. One of these is reported by Dr. Udden, of the University of Texas. It is near a fault line in the Big Bend country, where a spring might have been in the past, though there is no water there at present.

A ranchman in this region, Mr. J. C. Bird, of Alpine, reports also an extensive earthen ruin on a mesa top on his ranch, which may well prove to be an old Pueblo ruin.

Numerous caves and cliff shelters in the deep cañons of this region have been used for resident and burial places. The writer has three skeletons taken from one cave on the Devil's river.

Upon the walls of these caves, and on the protected walls of bluffs and cliffs are numerous Indian drawings, incised with flint implements; also painted figures. These are found throughout the semi-arid regions of the Southwest. They should be studied and copied as soon as possible, because they are being mutilated by whites at present and many will soon be indecipherable.

In an extensive cave in the Big Bend is found an elaborate map of the Rio Grande-Pecos-Devil's River region. This map, not only indicates the lines of the rivers, but the fordable places for man (indicated by human foot prints) and for horses (indicated by horse footprints), the trails across the regions, and hunting regions in which men on horseback are shown shooting deer with bow and arrow. A large drawing of the human hand, painted red, is on the bluff wall outside the cave. This find is reported by Mr. Wheeler, of the School of Economic Geology of the University of Texas.

In the cañons of the Panhandle, Indian relics of various kinds have been found. The sheltered places in the walls of the Palo Duro and other cañons, as in the Southwest, were excellent shelters against rain, snow, and winds, and were certainly inhabited. Skeletons have been dug up in such places, showing that they were sometimes used for burial purposes. The writer has never been into this region, for purposes of investigation, and so knows little about the Indian relics there.

The character of Indian relics found in Texas, over the surface

of the state, along the streams, about the waterholes and campsites, and in the burial places described, vary in character so widely that they represent nearly all grades of Indian culture that existed in North American regions north of Mexico. Within a range of fifty miles of Austin have been found almost every type of arrowhead that could be devised of flint. Some are so tiny that it is hard to conceive how they were made, some so large that they merge into spearheads, which attain a length of eight inches. Many are so crude as to be hardly recognizable, some represent the art of chipping flint at its perfection.

Within this radius are found axes, scrapers, and flint blades of almost every conceivable variety and size, except that only a few are polished or ground, so far as the writer knows. A cache of twenty-six blades, all now in the writer's possession, was found in South Austin, buried in a circular heap, their sharpest points outward. They range in size from four by three and one-fourth inches to eleven by five and one-fourth inches. The chipping of these blades is of a coarse flake variety, but is deftly done, so that the blades are notable for their symmetry and beauty of form. This find is very comparable to one from Ohio, of thirty-six blades, now in the National Museum. The Ohio blades are all pointed at both ends; the Texas blades, excepting one piece, at one end only, the other end having an axe-like edge.

Muller stones, hammers, rounded and circular, and disk-like stones hollowed out in the middle on either side by some sort of whirling apparatus, and possibly used in some such game as "chunkey," which Catlin saw the Mandans playing, are found near the Balcones fault line and to the west.

Scrapers, chisels, and flint knives are very abundant throughout central Texas and are found in virtually all of the limestone mounds.

Nowhere between the Balcones fault line and the Pecos region has the writer found any evidences of the art of polishing stone or of pottery-making. Throughout this region furthermore, there is very little evidence of seed-grinding. In other words, there is little evidence of the arts that imply a relatively settled life, and doubtless the Indians that occupied this region lived almost ex-

clusively on the products of the chase at all times. Everywhere are scrapers and polishers which indicate an intensive interest in skin dressing. The few things found here, indicating a settled life and higher arts than those pertaining to hunting, the writer believes to represent sporadic intrusions of bands from the settled semi-agricultural regions of east Texas or from the Trans-Pecos.

Of course the Texas field is very large, and complete exploration may bring to light many facts not known now and force the modification of any present views. It is a fascinating field of itself, and its importance is much enhanced by its position between the Mississippi Valley cultures on the one hand, and those of Mexico and of New Mexico, on the other. It has been neglected too long and should soon come in for its proper share of attention from those scientists interested in completing, as far as possible, the history of man.

UNIVERSITY OF TEXAS,
AUSTIN, TEXAS

ON THE PRINCIPLE OF ORDER IN CIVILIZATION AS EXEMPLIFIED BY CHANGES OF FASHION

By A. L. KROEBER

THE idea has no doubt often been held which the talented dogmatist LeBon voiced in the assertion that most social phenomena are expressible by nearly similar and presumably simple geometrical curves.¹ The rise and fall of national arts and of national fortunes certainly seem to bear out such a conception, even though definite proof has apparently never been attempted. Historians frequently allude to the development and degeneration of a state, or of some aspect of its civilization, as if such symmetrical growths and declines were familiar and normally recurring events; but they beware rather consistently from formulating the assumption into a principle, or proclaiming it as an abstract and accurate law.

If one considers the story of the Elizabethan drama from its stiffly archaic inception through the awakening in Greene and Marlowe, the Shaksperian glory, the slackening to the level of Fletcher, Webster, Ford, and Massinger, to the close of the play-houses by the civil war, the picture of an even-sided curve rises in the mind. The masterpieces of the greatest member of the school fall in the first decade of the seventeenth century. His more prolix and less intense tragedies and comedies, and the plays of contemporaries nearest him in achievement, precede and follow by a few years. Each quinquennium more distant from the culmination is marked by greater crudity in recession, more extended laxity in progression of time; and the total duration before and after the acme is substantially equal.²

¹ *The Psychology of Peoples*, London, 1898 (New York, 1912), page 12, footnote.

² *Ralph Roister Doister*, published 1566; *Gammer Gurton's Needle*, 1575; Lyly, wrote 1580-93; Greene died 1592, Kyd 1594, Peele 1598; blank verse in *Tamburlaine*, 1587; Shakspeare's first period, 1589-1594; Marlowe died 1593; Shakspeare's second period, 1594-1601; third period—"Hamlet," "Othello," "Lear," "Macbeth"—

If such a surge stood unique, it would be meaningless. But it is so often repeated in the history of aesthetics, that something of a generic principle must be involved. The classic French drama, that of Spain, of ancient Athens; the briefly great literatures of Rome, Portugal, and Germany; the so-called romantic poetry of England—even the minor stirring known as American literature; Italian art of the Renaissance; the Dutch and Flemish schools of painting; Greek sculpture—and, we might add, philosophy—each of these isolable movements has been traced through a similar course of origin, growth, climax, decline, and either death or petrification, analogous to the life stories of organisms.

While however we are obviously hovering above a latent principle embodied in these phenomena, its expression in exact form, capable of successful application in the resolution of other events of human history, is difficult; chiefly because the variability of the phenomena is qualitative, whereas a workable law or deterministic principle must be quantitative in its nature. It would indeed be possible to assemble comparative ratings of the degrees of achievement attained by each participant in any of these movements, to convert these ratings into numbers, and to trust to the averaging of opinions to efface, to a greater or less extent, the subjectivity of the individual judgments used. But such a procedure is too loose to promise much real advance of understanding. After all, it would rest on a series of composite photographs of verdicts as to qualities, and not on verifiable measurements.

The field of political history is also rich in data that point in the same direction. As a boy it seemed to me possible to express numerically the relative strength and prestige of the several Greek city states at intervals of equal duration, and thus to outline sharply the varying course of Hellenic history; and I remember computations actually entered in the attempt, which has very likely been made at one time or another by others. Everyone will recall in this connection the comment on the fall of Rome under Romulus

1601-08; Jonson wrote chiefly 1598-1614; Shakspeare's fourth period, 1608-13; Webster's best plays, 1612, 1616; Beaumont died 1616; Fletcher died 1625; Ford's best plays, 1629-34; Massinger, first play 1620, died 1639; closing of the playhouses, 1642.

Augustulus, whose name combined that of the founder and that of the exponent of the greatest success of the eternal city; and how, as at the laying of the walls first six and then twelve vultures flew overhead, the state grew, and then declined, for a total existence of an equal number of centuries. The anecdote is a play of symbolic fancy primarily, or perhaps a mnemonic device; but it also appeals dimly to a sense of historic necessity, of rhythmic inevitability, such as the later middle ages were fond of dwelling on in allusions to the wheel of fortune which revolved for nations as well as persons.

There is no need of citing at length similar cyclical growths familiar from more modern times: the rise and flourishing and decay of Venice, Florence, Poland, Portugal, Spain, and Holland.¹ There are even cases of repetition, as of the acmes reached by France under Louis XIV, Napoleon I, and Napoleon III—the three crests themselves constituting an ascending and descending climax of a higher order. Lane-Poole, in his diagrammatic representations of the history of the Mohammedan chalifates and kingdoms, although operating solely with the elements of geography and time, gives several figures that approach closely to a polygon of frequency or normal curve such as the statistical sciences employ.²

Political fortunes have this advantage over the fluctuations of the arts: they are readily expressible, and with substantial accuracy, in such quantitative terms as square miles of territory or drachmas or pounds of tribute and revenue. On the other hand, they suffer, as a medium for analysis, through their complexity. Any one of a number of factors, or any combination of them, may make or unmake a nation: a change of political institutions, a military invention, an economic alteration, a new demand or utilization of natural resources, a wave of religious fervor. The resultant of these variables being a composite, would in many cases show little regularity. Then, too, where a concentrated political

¹ Compare Quetelet's bold attempt in *Du Système Social*, 1848, to determine a normal duration of empires and cities.

² S. Lane-Poole, *The Mohammedan Dynasties*, 1894. See especially "Growth" and "Decline of the Ottoman Empire," pages 190, 191; also "Mogul Emperors" on diagram facing page xx.

organization has been achieved, opportunities are put in the hand of an occasional genius, or even of the man of unusual talent, for much more spectacular accomplishment, perhaps, than in the fields of artistic and intellectual endeavor. An Aristotle or Goethe needs predecessors, a Genghis Khan or Napoleon only a constellation.

The fields of religion and society are not so open to these objections, but suffer from lack of statistics. Census data are less common, except in the most recent years, than records of territories and dynasties. In the matter of religion, also, they necessarily relate chiefly to its organizational aspects, which, being crystallizations, do not keep pace with inward movements, and change by distorting jerks instead of fluidly.

Manufactured objects offer an approach which no other class of civilizational data presents: they can be accurately and easily measured. Yet often there are difficulties in this domain also. The series of articles preserved from the past are often insufficiently large, or from interrupted periods, or of uncertain date. Then, utilitarian pieces do not modify freely. Their purpose is likely to impose definite and narrow limits on their variability of form. A new material, or an added invention, may bring about a modification as sudden as it is radical; after which a new era of comparative stability ensues. Material objects whose chief end is ornament—jewelry, for instance—are much more free from the last mentioned defect. Still more promising are decorative or semi-decorative things of which satisfactory illustrations are available in numbers, in place of the concrete specimens themselves: articles of dress, for instance, as represented in fashion magazines. Such journals have existed for over a century; they are exactly dated; and they bring together in each volume a considerable number of examples to which rule or calipers can be applied without hindrance. That the actual wear of average men and women lags somewhat ineffectually behind the incisive styles of models or pictures, is immaterial. A knowledge of the course followed by ideals of dress is quite as valuable, as a contribution to the understanding of civilization, as knowledge of real dress; and this both *per se* and as an exemplification of the processes involved.

FASHIONS IN DRESS

Twenty years ago the project of inquiring into the principles that guide fashion arose in my mind, and I went so far as to turn the leaves of volume after volume of a Parisian journal devoted to dress. But the difficulties were discouraging. Pivotal points seemed hard to find in the eternal flux. One might measure collars or sleeves or ruffles for some years, and then collars and sleeves and ruffles disappeared. One lady in a plate was seated; another erect, a third in profile, the fourth elevated her arms. If one took as a base the total length of the figure, coiffures fell and rose by inches from time to time, or were entirely concealed by hats or nets. I abandoned the plan as infeasible.

In 1918 I renewed the endeavor, this time with less ambitious scope and greater readiness to seize on any opening. I decided to attempt only eight measurements, four of length and four of width, all referring to the figure or dress as a whole, and to disregard all superficial parts or trimmings. Strict comparability of data being essential, it was necessary to confine observations to clothing of a single type. Women's full evening toilette was selected. This has served the same definite occasions for more than a century; does not therefore vary in purpose as does day dress, nor seasonally like street clothing. The material always remains silk, and there have been no totally new fundamental concepts introduced, such as the shirtwaist and tailored suit. The variations are therefore purely stylistic. And while this range promised to be perhaps somewhat narrower than those of certain other types of women's wear, this was of little moment. If any principle could be determined, it would apply *a fortiori* to the more changeable kinds of clothing.

MEASUREMENTS

The measurements made were the following:

1. Total length of figure from the center of the mouth to the tip of the toe. If the shoe was covered, the lowest point of the skirt edge was chosen. The selection of the mouth obviated all difficulties arising from alteration of hairdress.
2. Distance from the mouth to the bottom of the skirt. This

equals the last measurement less the height of the skirt from the ground.

3. Distance from the mouth to the minimum diameter across the waist. This serves as some sort of indication of the length of the "waist" or corsage, that is, of the upper part of the figure. The true waist line of the dress has been disregarded. It would have been much more significant stylistically and probably shown more decided variations; but there are periods when it vanishes. When the waist line is visible and below the minimum diameter of the waist, the distance between the two was also noted.

4. Depth or length of décolletage, measured from the mouth to the middle of the corsage edge in front.

5. Diameter of the skirt at its hem or base.

6. Maximum diameter of the skirt at any point above the base. In some cases this exceeds the diameter at the bottom. Ordinarily it is smaller, but in some instances nevertheless definitely visible: that is, the skirt swells, constricts, and flares again. This diameter did not prove a generally useful measurement. Whenever it could be taken, the distance from its middle to the mouth was also recorded as a supplementary datum.

7. Minimum diameter in the region of the waist.

8. Width of shoulders, or more accurately, width of the décolletage across the shoulders. In the earlier years of the period covered, the upper edge of the dress frequently passes below the point of the shoulder, across the uppermost part of the arm, as a bertha or slight sleeve. In such cases the measurement was recorded. Of recent years, the corsage often really ends under the arms, being held up in appearance by straps over the shoulders. Here it seemed best to measure the distance between the straps. When however the strap is pushed off the shoulder to fall loosely down the arm, or is wholly wanting, the present measurement had to be omitted.

Ten figures were measured for each calendar year, the first ten suitable for measurement being taken from each volume, so as to ensure random instead of subjective selection. Fashion journals of the middle of the nineteenth century contain fewer

illustrations than recent ones. It sometimes happened therefore that only seven or eight toilettes were represented in the numbers from the first of January until summer, when full dress styles suspend seasonally. In such cases the rear end of the volume for the preceding year was drawn upon to supplement the deficiency. An entry like 1857 is thus normally based on plates issued from January to March or April or May of that year, but occasionally would begin in December or even November of 1856. Even at that, insufficiency of material or oversight has resulted in a few years being represented by only nine sets of measurements. Unfortunately also, there is scarcely a year for which ten illustrations could be found in each of which all eight measurements were recordable. A gown may be shown very completely in full face except for one corner of the skirt, which is hidden behind the chair of a seated companion. The basal skirt width can often be pretty well guessed in such cases, and an estimate was generally made; but only actual measurements have been included in the averages discussed. If in the taking of the observations such a deficient figure had been passed over, the next picture might have indeed exhibited the desired skirt width, but failed to show two or three other features; and too firm an insistence on all eight traits would often have yielded only three or four instead of ten measurable illustrations in a year. For instance, there are periods when it was overwhelmingly fashionable to hold the forearm horizontal, or to bring out the convexity of the bust by drawing it in semi-profile. In such years waist diameters are mostly obscured by the arm, and full shoulder widths very hard to get. The consequence of all these little circumstances is that the majority of the eight features observed are represented, year by year, by less than ten measurements, sometimes only by four or five. On the whole, preference was given to observations of the entire figure length, which was to be used as a norm for computations; and to the two next greatest measures, skirt length and width. For these, then, the series of data are fullest.

It must be admitted that ten measures is not a very large maximum from which to derive reasonably true averages in so variable

a thing as fashionable dress, where each design strives almost as keenly after distinctiveness as after conformity to the prevailing style. I was conscious of this slenderness of basis. But the measurements as well as the reductions to percentages and averages are time-consuming; and for a preliminary investigation it seemed wiser to obtain a comparatively long series of small groups of measurements than to operate with measurement groups of a size more reliable for averages but covering fewer years. Ten cases from each of seventy-five years would give a better surveying perspective than twenty-five cases continued for thirty years; in addition to which the ten or approximately ten illustrations were rather readily obtainable, whereas it would have been bibliographically exacting to find twenty-five for most of the earlier years.

The outcome vindicated the hazard. The smallness of the series is unquestionably the cause of many of the fluctuating irregularities that appear in the chronologically arranged results. But in the case of every dimension the irregularities are not so great as to prevent recognition of the underlying drifts and tendencies; whereas the period of these tendencies is mostly so long that they would have been very imperfectly determinable, and often not at all, within a compass of only thirty years. In fact it would have been desirable if the range of investigation could have been extended from 75 years to 125. The net result of a larger series of cases would therefore have been a probable smoothing and increased regularity of the plotted curves expressive of the course of fashion; and some segregation of the present irregularities into historically true ones and others that represent only statistical inadequacy. But presumably nothing more would have eventuated from the increase of data.

I may here express my conviction that any farther quantitative investigations that may be undertaken as to the course of stylistic changes should be planned to cover if possible a period of from one to two centuries, whether they concern fashions of dress or of jewelry, silverware, or furniture.

THE DATA OBTAINED

I began the measurements with the year 1844 for the reason that that was the first volume of a fashion journal which I happened to know to be accessible in New York city, where I then was. The journal was the *Petit Courrier des Dames* in the Avery Library of Columbia University. The broken set ended in 1868, and I was driven to the Public Library for continuation. *Harper's Bazar* was available here in complete file to the present, and in it were made the measurements up to 1908. The Parisian journal contained beautiful lithographs only, the American exponent of fashion woodcuts of a horribly crude kind; and I feared at first that the difference in mode of illustration would vitiate comparison, and render wasted the work already done. The American waists seemed at least a quarter thicker, and all of the proportions clumsier. Juxtaposition of the percentages for adjacent years however proved at once that the difference was only in artistic execution. The American draftsman fell as far short of his French colleague as the American designer was obviously doing slavish imitations of French models. In the same way the introduction, years later, of the zinc-engraved ink drawing, and then of the half-toned wash painting, yielded an entirely new type of fashion plate without in the least affecting the fashions represented.

Still more recently, half-toned photographs of living models suddenly made their appearance, and again I was disconcerted. Surely no dress worn on an actual human frame could be as extreme as the stylistically idealized pictures that had preceded. But again alarm was vain. Fashion journals are conducted to serve a definite practical purpose whose achievement their users can apparently gauge; and the reproduction, whatever its manner, must conform. The appended percentaged comparisons for several years are convincing as to the substantial unity of the data employed.

The chief constant difference of any consequence appears to be the diameter of the waist—dimension 7—which is greater in life. That is, draftsmen of fashion plates pinch this in beyond the cut of actual dresses; and that even when a thick waist is correct, as in these years from 1912 to 1917.

COMPARISON OF FASHION PLATES RESPECTIVELY DRAWN AND PHOTOGRAPHED FROM LIVING MODELS

Dimension	1912		1913		1917	
	5 Dr.	5 Ph.	7 Dr.	3 Ph.	6 Dr.	4 Ph.
1.....	100	100	100	100	100	100
2.....	98.5	98	94.2	89.3	86.3	90.9
3.....	24	24.6	26.1	24	24.2	24.5
4.....	13.8	13	16.7	13.7	14.3	15.7
5.....	25	29.8	32.7	36	60.2	49.9
6.....	—	—	—	—	—	—
7.....	12.7	13.6	12.5	15.8	11.5	16
8.....	9.7	13.3	12.5	15	11	12.2

From 1909 to 1918, I had available volumes of *Harper's Bazar* in the Public Libraries of New York and San Francisco; and the fashions for 1919 are taken from the March number of *Vogue*.

THE DATA FOR 1859, 1886, 1910

(1)-(8), as defined; (9), distance from mouth to middle of maximum diameter of skirt; (10), distance from minimum diameter at waist to waist line or point of corsage; all in millimeters. Figures in parentheses are estimates.

1859

(1).....	120	125	113	125	133	125	125	129	125	123
(2).....	120	125	113	125	133	125	125	129	125	123
(3).....	(30)	31	29	31	34	30	32	33	32	29
(4).....	16	17	16	18	24	14	16	17	22	13
(5).....	(115)	147	142	140	153	150	140	146	142	135
(6).....	—	145	136	142	—	—	145	—	—	—
(7).....	(9)	9	10	—	—	—	10	—	—	9
(8).....	(19)	24	20	23	24	23	21	23	(22)	25
(10).....	14	14	13	18	17	7	10	—	15	—

1886

(1).....	148	145	148	161	159	150	160	162	181	137
(2).....	142	137	144	158	155	—	152	155	171	130
(3).....	42	41	44	46	42	41	43	45	51	38
(4).....	22	24	21	26	28	23	23	20	23	—
(5).....	76	59	105	83	65	70	125	(77)	151	63
(6).....	—	56	—	72	71	54	55	—	65	—
(7).....	14	14	12	13	13	11	11	15	21	14
(8).....	29	21	17	25	28	17	19	—	26	—
(9).....	—	82	—	69	85	63	72	—	77	—
(10).....	—	—	14	16	18	—	—	—	18	—

1910

(1).....	99	108	112	105	110	120	113	116	118	124
(2).....	99	102	112	105	110	120	113	114	118	124
(3).....	25	26	31	28	28	30	26	30	26	32
(4).....	13	—	17	15	11	21	12	13	—	18
(5).....	30	32	52	50	25	34	39	31	34	(44)
(7).....	12	11	14	13	14	15	12	13	—	14
(8).....	10	—	13	—	16	17	15	14	—	19

It is surprising how poorly equipped in fashion journals the greater institutional libraries of our largest cities are. For those interested in similar researches, I would recommend inquiry at theatrical organizations for data on dress, and files of manufacturers' catalogues for industrial products.

It has not seemed necessary to print my measurements in full. I append those of three years as samples. The complete manuscript data are at the disposal of anyone who may be interested to follow the matter farther.

The absolute numbers were throughout converted into percentage ratios to the length of the entire figure as it has been defined. The percentages for each measure were then averaged for each year. It is these year percentage averages that are brought together in the appended summary tabulation, are plotted in the charts, and are throughout referred to in the discussion that follows:

RATIO OF DRESS DIAMETERS TO HEIGHT OF FIGURE

	2	3	4	5	7	8
	Length of Dress	Length of Waist	Decolletage	Width Skirt	Width Waist	Width Shoulders
1844.....	97.9	28.9	14.6	57	8.2	20.3
1845.....	97.5	27.9	14.1	59.4	8.4	19.7
6.....	98.2	28.4	13.1	57.3	8.3	18.7
7.....	98.4	28.9	14.8	64.7	8.8	19.6
8.....	98	27.8	13.4	59.6	8.5	20
9.....	97.9	28.7	13.3	62.7	8.4	20
1850.....	97.8	28.6	12.7	64.2	8.2	20.7
1.....	98.7	29.4	13.9	61.3	8.4	21.2
2.....	97.6	27	14.1	70.3	8.3	21.4
3.....	98.1	27.7	12.8	70.2	7.7	21.2
4.....	97.9	27	14.1	79.3	8.4	20.6
1855.....	98.2	27.9	13.3	83	9	21
6.....	98.3	27.7	13.4	80.2	8.6	19.1
7.....	98.4	26.7	13.9	86.2	9	19.6
8.....	99.6	26.8	15.2	100.3	7.9	18.8
9.....	100	25.3	14.4	115.6	7.8	18.2
1860.....	99.8	24.8	12.3	107.1	7.6	18.1
1.....	100	24.9	12.3	104.3	8	17.8
2.....	99.6	24.1	13.2	96.1	7.6	17.9
3.....	98.7	24.9	13.1	101.6	9	17.1
4.....	99.5	23.9	13.5	100.1	8.5	18.1
1865.....	99.8	22.8	12.7	108.6	8.6	17.5
6.....	99.8	22.4	12.8	99.7	8.2	18
7.....	97.9	21.2	11.7	98.7	8.1	16.7
8.....	98.8	22	12.7	88.4	9	16.1
9.....	100	21.8	13.8	85.5	9	16

	2	3	4	5	7	8
	Length of Dress	Length of Waist	Decolletage	Width Skirt	Width Waist	Width Shoulders
1870.....	99.1	22.2	12	88	9.2	16.8
1.....	99.3	22	13	74.9	9	16.4
2.....	99.3	22.8	15	77.6	11	16.7
3.....	99.2	24.5	13.8	84.8	10.1	18.3
4.....	99.2	22.2	14.1	84.5	9.5	15
1875.....	100	22.3	14.1	79	10.4	17
6.....	99.2	23.6	13.4	84.7	9.5	13.5
7.....	98.7	23.8	13.5	76.4	8.7	13.7
8.....	99	24.8	14.5	70.9	8.9	14.6
9.....	98.7	26.1	13.3	62	8.7	15
1880.....	98.7	27.5	15.4	68.8	8.7	14.1
1.....	97.7	27.6	14.2	52.3	8.5	14.7
2.....	96.6	26	12.7	56	7.8	15.3
3.....	96.9	26	12.8	54.7	8.6	17.2
4.....	96.4	26.2	13.1	52.2	8.2	14.4
1885.....	97	27.4	14	56	8.7	15.2
6.....	95.8	27.3	14.9	56.6	8.9	14.7
7.....	95.5	27.2	12.9	50.9	8.3	14.2
8.....	95.7	27.6	14.1	57.8	8.3	13.1
9.....	96.6	27.7	13.6	51.5	9.6	13.2
1890.....	97.3	28.2	14.1	50.2	8.5	13.5
1.....	97.3	28.3	14.4	53.7	9.2	12.6
2.....	97.4	28.7	13.4	51.1	9.2	14.3
3.....	98.8	27	13.6	55	9.3	13.2
4.....	98.2	28.8	14	55.5	9.2	14
1895.....	98.7	27.4	14	60.7	8.6	15
6.....	99.2	27.9	14.3	68.2	9.6	15.2
1897.....	99.9	28.9	14.4	60	8.6	15.8
8.....	99.8	29.5	14.7	53	8.1	11.9
9.....	100	29.7	14.6	65.3	9.3	12.5
1900.....	99.3	30.5	15.1	52.5	8.7	13.4
1.....	99.7	30.5	12.5	64.8	9.4	13.3
2.....	100	30.1	13.1	58.9	9.9	11
3.....	100	32.6	15.2	50.4	9.6	13
4.....	100	32.3	14	56.5	9.9	14.8
1905.....	100	30.3	14.6	53.7	9.2	15.2
6.....	99.6	28.8	16.2	56	9.5	11.2
7.....	99.6	28	13.3	51.2	9.7	12.3
8.....	99.3	25.4	11.7	49	10.9	12.9
9.....	99.7	24.3	14.6	38.4	12.8	12.1
1910.....	99.2	25.2	13.3	32.9	11.7	13
11.....	98.6	26.1	14.2	23.2	12	12.2
12.....	98.2	24.3	13.4	27.4	13.2	11.7
13.....	92.6	25.5	15.4	33.7	13.6	13.3
14.....	91.8	25.3	14.4	29.1	13.9	15.2
1915.....	91.1	24.4	16.2	46.1	13.7	11.2
16.....	84.3	25	16.4	49.1	12.6	12.3
17.....	88.1	24.3	14.8	55.7	13	11.4
18.....	85.3	24.2	13.7	20.3	13.4	10.6
19.....	84.2	24.1	14.2	33.2	13.2	12.9
Average	97.7	26.4	13.8	65.3	9.4	15.6

WIDTH OF SKIRT

Of all the elements of dress examined, that of diameter of skirt yields the most impressive results, especially in graphic plotting (fig. 20). The irregularities of the rhythm of change are also more quickly understood in this point of fashion than for most others. Nevertheless the superiority which skirt width enjoys over other factors as an index of demonstration is more apparent than actual. It is even exceeded by some of them in the wave-length of their periodicity.

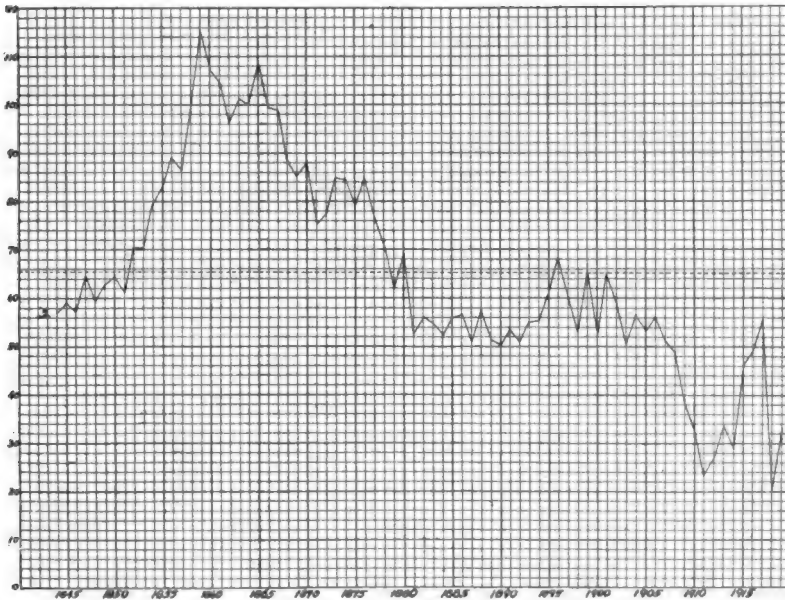


FIG. 20.—(5), Width of skirt.

The following remarks refer to the diameter of the bottom of the skirt. This is not always the maximum diameter. But on the whole the fashions that narrow the skirt downward are rare; and they disagree among themselves as to the region of the greatest width.

When our record opens in 1844, it finds evening toilettes of

moderate skirt width, 57 per cent. of the body length.¹ For several years the proportion fluctuates mildly, gradually rising.

In 1851, having attained a percentage of 61, the width of skirt suddenly begins to mount rapidly and continuously, until the plotted curve skyrockets to the extreme maximum of 116 in 1859. This is the apex of the crinoline hoop skirt fashion, when the flare of the skirt exceeds the height of the person. In eight years the skirt diameter has nearly doubled.

From 1859 on, the history of the skirt may be summarily described as a fifty years' progressive constriction.

The narrowing after 1859 is not as rapid as the widening immediately preceding; but within three years the proportion has fallen from 116 to 96. At this point a new sub-factor enters: the train. The skirt as a whole continues to lose fulness, but the attached train more than compensates for the shrinkage of diameter at its base. The plot therefore shows a checking of the descent, a new rise, and a secondary maximum of 108 in 1865.

The inflated, bell-like hoop skirt and the long-trained skirt are obvious antitheses, structurally as well as stylistically, and must have been felt so at the time. It is interesting that on wider perspective they prove both to have been only surface manifestations of a much more profound though less articulate impulse toward a pyramidal presentation of the figure.

From 1866 the great underlying swing toward narrower skirts continues, until about 1871 the figure has sunk to 75, although trains still rule.

In 1872 begins a second reaction, resulting in another superficial rise in the plot. This is due to the coming in of the "Grecian Bend," famous in the caricature of its day. This specialty however holds its own only four or five years, and by 1877 the proportion is back around 75.

From 1878 to 1881 the general narrowing which is the normal tendency for this era resumes, until in 1881 the percentage sinks to 52—a lower figure than any since the opening of our examination.

In 1881 the first trainless skirts in a dozen years appear, and

¹ Mouth to toe, or to lowest point of skirt if the toe is covered.

until 1895 trainless and trained gowns occur side by side in about equal numbers. A skirt that rises well above the ground would ordinarily be narrower than a sweeping one. The inclination to constriction might expectably therefore be accentuated by the partial disappearance of the train; but this is not so. The general tendency of these fifteen years is for the diameter to remain stationary, with fluctuations between 50 and 60.

The period from 1895 to 1907 is one of more violent fluctuations, the limiting percentages almost attaining 70 and 50. The years from 1892 to 1898 show a widening and narrowing whose course looks as if it might constitute a third superficial wave. It is notable that the peak of 68 in 1896 is reached in a trainless year, this type of skirt prevailing also through the recession of 1897 and 1898 back to 53. The sudden widening to 65 in 1899 corresponds with the reintroduction of trains; but the succeeding years, with percentages of 52, 65, 59, and 50, constitute a period of almost exclusively trained skirts. From 1903 to 1907 the fluctuations are less violent, as if the reactionary tendencies that had forced the spasmodic widenings of the preceding decade were becoming exhausted, preparatory to the impending great impulse to constriction.

By 1908, the main sweep of the half century is once more on its way. For the first time in our story the basal diameter falls below 50. The next three years witness the final plunge into the extreme hobble and tube skirt toward which the progress of fashion has been consistently trending for a life time. The violence of this culmination is parallel to that of the inflation which 52 years before marked the end of the half century or more of gradual widening since the days of the Directoire and early Empire,—itself a period of accentuated revulsion from the flaring skirts of Louis XV and XVI. On the chart the recent chasm is as abrupt as the pinnacle of 1859. By 1911 the apogee of slimness is reached: the percentage is only 23—less than half the extremest narrowness attained in sixty preceding years, and but a fifth of the greatest width.

It is perhaps worth noting that trained and trainless skirts prevail side by side during these years.

By 1912 the tide has once more turned—no doubt to continue

now for another two or three score years unless the periodicity of the rhythm is accelerated by some unknown new cause or is totally broken off by an alteration of fundamental fashion, such as the substitution of trousers for skirts. As in 1860-62, the recovery is rapid: 23, 27, 34, 29, 46, 49, 56.

1918 and 1919 show a reaction toward narrowness, with percentages of 20 and 33. The former indeed is the lowest figure in the entire series—lower even than the true climax in 1911. The cause is in part a sudden loss of trains in 1918. Compare 1911, 4 trained skirts, 28.7, 6 trainless, 19.5; 1918, 1 trained, 44, 8 trainless, 17.4. On the other hand, there is also a real reaction in this year, as the figures for trainless skirts alone reveal. Thus 1911-14: 19, 20, 20, 13; 1915-17: 35, 49, 37; 1918-19: 17, 18. Perhaps the reconstriction of these last two years may be considered as paralleling the rewidening during 1863-65 after the recession from the peak of 1859.

The complicating factor of trained versus trainless skirts is dealt with in the following table, which begins with 1863, when trains were reintroduced. It appears that on the whole trains are less favored as a device for attaining width and trainless skirts as a means toward slenderness than might be anticipated. Rather do the proportions for both types of skirts rise and fall together according to the tendency of the time.¹ A train that springs from the waist or hip can indeed be used to give the effect of fulness. But one of equal or greater length that only begins to trail from below the knee allows the lower part of the figure to attain as much slimness as may be sought; and if wrapped around the ankle, may even accentuate the effect of constriction.

The average width of skirt for the 76 years is 65.3. It will be seen that from 1852 to 1878 inclusive this figure is exceeded each year, whereas before and after that period it is never attained, except in 1880 (68) and again in the spasmodic flares of 1896 (68) and 1899 (65). On the plot the horizontal line for this average

¹ The numbers are too small for satisfactory graphic plotting, but indicate that with a larger series of cases the lines for trained and trainless skirts would roughly parallel the combined line shown—one above and one below it. At least two times out of three, perhaps oftener, they would move in the same direction.

helps to emphasize the crest and the trough of the great secular wave.

Year	Train		No Train	
1863.....	4	104.7	4	98.7
1864-5.....	all			
1866.....	6	106	2	81
1867.....	all			
1868.....	9	91	1	65
1869.....	all			
1870.....	6	93.2	1	57
1871-80.....	all			
1881.....	4	65.5	3	34.7
1882.....	5	72.4	3	28.7
1883.....	3	74.3	4	40
1884.....	3	67	6	43.3
1885.....	2	81	4	43.5
1886.....	4	70.7	5	45.4
1887.....	3	65.3	6	43.7
1888.....	3	83	6	45.2
1889.....	4	65.9	5	40
1890.....	6	58.3	4	38
1891.....	5	66	4	38.2
1892.....	8	55.2	2	35
1893.....	7	62.2	3	38.3
1894.....	3	66	7	50.6
1895.....	5	62.6	4	58.2
1896-8.....			all	
1899.....	9	66.9	1	51
1900.....	9	52.6	1	52
1901-3.....	all			
1904.....	9	56.7	1	55
1905.....	9	54.4	1	47
1906.....	9	56.1	1	55
1907.....	7	52.6	3	48
1908-9.....	all			
1910.....	3	43	6	27.8
1911.....	4	28.7	6	19.5
1912.....	7	30.4	3	20.3
1913.....	7	39.7	3	19.7
1914.....	6	37.2	3	12.8
1915.....	3	71.3	7	35.3
1916.....	1	50	9	49
1917.....	8	58.1	1	37
1918.....	1	44	8	17.4
1919.....	4	56	6	18

LENGTH OF SKIRT

There is a one sided correlation between width and length of skirt. A short gown may be full or narrow; but a tight one will scarcely extend very near the ground, on account of the inconvenience. A period of decisively close skirts will therefore almost

necessarily be a period of short skirts also; but the reverse does not hold.

There is a farther difference. A skirt may be of almost any width or narrowness in a fashion plate or on a posed model. When slenderness is desired, one leg is put behind the other, in a front view, and the dress made to cling to an exaggeratedly slim calf or ankle. In other words, there is no fixed limit of extremity. The possible length of a dress is however automatically cut off when it reaches the ground, or when, in an illustration, it descends far enough to conceal the feet. Yet a gown can shorten indefinitely.

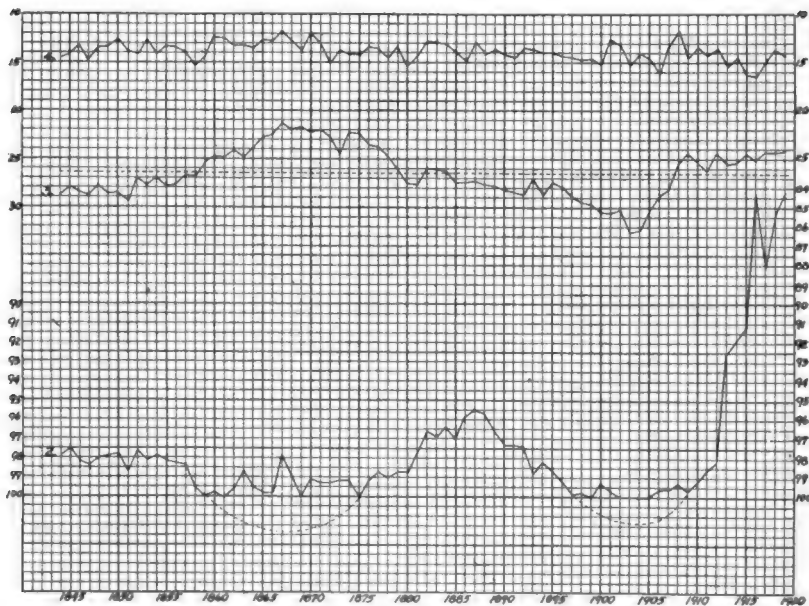


FIG. 21.—(2), Length of skirt; (3), Length of waist; (4) decolletage.

This brings it about that when skirt length attains its maximum, it remains apparently stationary for a time, whereas at its minimum it reaches a climax and quickly descends again. It might be said that fashion clearly tries, and is prevented only by physical impossibility, to draw the bottom of the dress several inches into the ground. In the chart (fig. 21), this discrepancy has been indicated

by two lines: a level horizontal one at the maximum of 100 per cent.; and a dotted one suggesting the ideal curve which the data show that style would follow if it could.

The rhythmic period for skirt length is only a third that for width: about thirty-five years as against a century. The chart and table yield the following summary.

Period	Duration	Measurements	Movement
[1844]-1859	16 +	97.5 > 100	Gentle lengthening.
1860-1875	16	at 99 or 100	Full length.
1876-1887	12	100 > 95.5	Shortening.
1888-1899	12	95.5 > 100	Lengthening.
1900-1910	11	at 99 or 100	Full length.
1911-[1919]	9 +	99 > 84	Violent shortening.

The curves, allowing for their impinging on the limit, look symmetrical; but if the figures for the seventy-odd years examined are representative, the wave-length of the trait is diminishing and the amplitude increasing. In untechnical language, style alters more rapidly and unrestrainedly on this point as time goes on.

DIAMETER OF WAIST

A first glance at the plot suggests that the greater part of a century has brought little change in the minimum diameter of the fashionable woman's waist; and that change irregularly fluctuating. The only very striking movement is at the end of the plot (fig. 22). But a grouping of the figures in the table brings out two definite swings each way.

Period	Duration	Measure	Description
1844-1857	14	8 ¹	Average.
1858-1862	5	7	Slender.
1863-1871	9	8	Average.
1872-1876	5	9, 10	Full.
1877-1888	11	8	Average.
1889-1900	12	8, 9	Above average.
1901-1907	6	9	Full.
1908-1919	12	10, 11, 12, 13	Very full.

¹ "8" = 8.1 to 9.0; and so for the other figures.

This might be put as follows in terms of tendency:

Ca. [1844] to 1860, decreasing.

Ca. 1860 to 1874, increasing.

Ca. 1874 to 1882, decreasing.

Ca. 1882 to 1914, increasing.

The durations would be about 16, 14, 8, and 32 years. This does not look very regular.

It must be remembered that the measurement used is the smallest diameter in the waist region, which usually does not coincide with the waist line as the cut of the dress brings it out, and often departs considerably from it. Stylistically this measurement is therefore somewhat arbitrary.

LENGTH OF WAIST

Length of waist, as here defined, is also an arbitrary measurement. It is the distance from the mouth to the middle of the minimum diameter of the waist, not to the formal waist line of the dress, which is sometimes strongly accentuated and at other periods indefinite. Could the height of the waist line have been satisfactorily used, there might perhaps have eventuated a considerably more striking amplitude or decision of rhythm.

As it is, the plot shows a marked shortening or raising of the waist, a still more decisive lowering, and then a sudden sharp rise again, which appears to have reached its consummation and to be hovering before a new decline. The period of waist lengthening extends from about 1867-69 to 1903-04, or approximately thirty-five years. On the assumption that the rhythm is symmetrical, the preceding acme of long-waistedness would fall around 1833. But the figures from 1844 to 1850 are too uniform to allow of much inference. They might, so far as their plot proves anything, come from a middle and more or less halted portion of a long swing toward high-waistedness, or be the end of a briefer tendency toward a drawn-out bust. A carrying of the investigation back some fifty years more would no doubt elucidate these questions.

In any event, the shortening of the waist between 1904 and 1909, which coincides with its enlargement, is a more extreme and

rapid movement than any that precede. It can further be noted that the culmination of the previous period of waist shortening, about 1867-69, is also a time of transverse enlargement; or to be accurate, in both cases the acme of shortness is attained while the

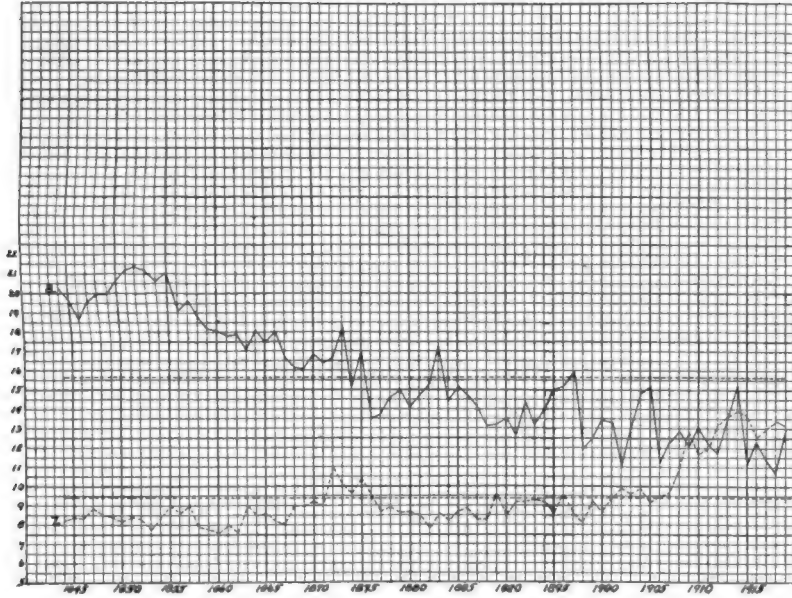


FIG. 22.—(7), Width of waist; (8), Width of decolletage.

movement toward thickness is well under way, the peak of this latter falling several years later. The effect on the bodily appearance is however quite different. The earlier high waist was directed toward producing a high and rounded protruding bust, the later a flat one.

DECOLLETAGE

This is measured from the upper edge of the corsage to the mouth. The plot looks inconclusive; but the figures in the table show the following rhythms:

1844, at 14.6.

Then the corsage rises to 12.7 in 1850.

Exposure increases gradually to 15.2 in 1858.

It decreases again to 11.7 in 1867.

Lowering of the edge progresses to 15.4 in 1880.

Sudden rise to 12.7 by 1882.

Lowering to 15.1 in 1900.

Another sudden rise to 12.5 in 1901.

Lowering, with fluctuations, to 16.2 by 1906.

Rise to 11.7 by 1908.

Lowering to 16.4 by 1916.

Since then a rise seems in progress.

The periods of lowering, or increase of exposure, aggregate nearly three times as long as the rises of the corsage, which come by leaps, especially after 1880:

Decrease of exposure, 6 years; increase 8.

Decrease, 9; increase 13.

Decrease, 2; increase 18.

Decrease, 1; increase, 5.

Decrease, 2; increase, 8.

The cause of this asymmetry is not clear.

The periodicity is also rather irregular as regards duration. It seems to average around fifteen years.

WIDTH OF DECOLLETAGE

This trait appears to have a very long periodicity. The first few years of the record are indecisive: they may represent the end of a period of broadening of shoulder exposure. At any rate by 1851-53 a maximum is reached above 21. From here on a narrowing continues without substantial interruption for more than sixty years.

By 1861 the figure has sunk below 18, by 1869 to 16. An increase to 18.3 in 1873 may be discounted on the ground of being based on only three measurements. By 1876 the percentage has fallen to 13.5, and the plates evince a strong inclination to show the bust in profile; which is likely itself to be a symptom of aversion for expanse of shoulders.

1877 to 1883 are reactionary, with an increase to 17. This wave is however so brief in comparison to the general swing as to be obviously secondary.

From 1883 to 1891 the narrowing continues, reaching the new

low record of 12.6. From 1892 to 1897 there occurs another secondary broadening, which however fails to attain 16. From here on the course is fluctuating, but generally downward, as shown by the new low figures around 11 in 1898, 1902, 1906, 1912, 1915, and 1917, and a supreme minimum below 11 in 1918. The broadest decolletage in these last twenty years comes in 1905 and 1914 at 15. These may represent a third and fourth brief superficial rhythm carried on the downward swing of the underlying one.

The general course of this trait is similar to that of basal skirt width, with probability of an even longer period, though a less accentuated amplitude of variation owing to anatomical limitations.

Continuity of movement is particularly impressive when depth and breadth of decolletage are compared together in units of sufficiently large periods to smoothe out the fluctuations due to temporary changes of fashion and the irregularity that is inevitable when small series of figures are employed. It is true that the most striking event in the history of decolletage depth is its increase in recent years, which synchronizes with a decrease in width. Yet it is clear that this is no mere coincidence, but the culmination of a drift that has set for 70 years.

Period	Length to Width
1844-47.....	72 : 100
1848-53.....	64 : 100
1854-59.....	72 : 100
1860-65.....	72 : 100
1866-71.....	78 : 100
1872-77.....	89 : 100
1878-83.....	91 : 100
1884-89.....	97 : 100
1890-95.....	101 : 100
1896-01.....	104 : 100
1902-07.....	111 : 100
1908-13.....	110 : 100
1914-19.....	122 : 100

COMPARISON OF THE SEVERAL RHYTHMS

We have, I think, now found reasonable evidence of an underlying pulsation in the width of civilized women's skirts, which is symmetrical and extends in its up and down beat over a full century;

of an analogous rhythm in skirt length, but with a period of only about a third the duration; some indication that the position of the waist line may completely alter, also following a "normal" curve, in a seventy-year period; and a possibility that the width of shoulder exposure varies in the same manner, but with the longest rhythm of all, since the continuity of tendency in one direction for seventy years establishes a periodicity of about a century and a half, if the change in this feature of dress follows a symmetrically recurrent plan.

There is something impressive in the largeness of these lapses of time. We are all in the habit of talking glibly of how this year's fashion upsets that of last year. Details, trimmings, pleats and ruffles, perhaps colors and materials, all the conspicuous externalities of dress, do undoubtedly alter rapidly; and it is in the very nature of fashion to bring these to the fore. They are driven into our attention, and soon leave a blurred but overwhelming impression of incalculably chaotic fluctuations, of reversals that are at once bewildering and meaningless, of a sort of lightning-like prestidigitation to which we bow in dumb recognition of its uncontrollability. But underneath this glittering maze, the major proportions of dress change with a slow majesty, in periods often exceeding the duration of human life, and at least sometimes with the even regularity of the swing of an enormous pendulum. The child whose braids hang down her back may be reasonably sure that in the years when her daughters are being born she will wear longer dresses than her mother now goes about in; and that her skirts promise to be wider each successive decade until she is a grandmother. There is something in these phenomena, for all their reputed arbitrariness, that resembles what we call law: a scheme, an order on a scale not without a certain grandeur. Not that the fashion of a future date can be written now. Every style is a component of far too many elements, and in part uniquely entering elements, to make true prediction possible. But it does seem that some forecast can be made for any one basic element whose history has been sufficiently investigated; and that, when the event arrives, if the anticipation be proved to have been more or less erroneous, the

source of the aberration may be clear, and the disturbingly injected forces stand revealed as subject to an order of their own.

It is not to be expected that the development and decline of every trait of dress or civilization should follow a normal curve, that is, a symmetrical course. For an element of civilization wholly unrelated to all others, such symmetry could perhaps be anticipated. But completely integral elements are an idea rather than a fact. There must always be some interaction with other factors in the same and cognate phases of culture, and occasional interferences from more remote domains. A certain proportion of features should therefore follow irregular courses, or asymmetrical curves; and in this class it seems that diameter of the waist and depth of décolletage should be placed.¹

Secondary tremors ruffling the evenness of the great pulsations are at first sight disturbing to the concept of orderliness, but on analysis confirmatory, in that they reveal an increase of the intricacy of the operative forces without diminishing their regularity. In this manner the long range curves for width of skirt and shoulders, each bearing about three superimposed but symmetrical minor crests, add substance to the generic conclusions reached.

Finally, while it would make for the greater simplicity of historical causality if it were found that acmes of fashion came in recurrences of equal periodicity, such regularity can hardly be expected. There is no conceivable reason why there should be anything inherent in the nature of dress tending toward a change from full to narrow and back to full skirts in a century. All historical phenomena are necessarily unique in some degree, in the field of nature as well as of human activity; and a similar rhythm of fashion

¹ Clark Wissler, *American Anthropologist*, N.S., vol. XVIII, pp. 190-197, 1916, points out that the distribution of sherds of certain decorative styles in the successive levels of the refuse heap at the ancient New Mexican pueblo of San Cristobal, as excavated and reported on by N. C. Nelson, follows typical curves, these curves each representing "the rise and decline of a culture trait." Each foot of debris may be taken as representing an approximately equal duration of deposition, as indicated by the fairly steady number of sherds of all types found at each depth. The figures are, for black-on-white painted ware, (103), 107, 118, 40, 8, 2, 6, 10, 2, 2; and for black or brown glazed yellow ware, 0, 3, 45, 91, 192, 128, 52, 68, 64, 24. The latter series may be skew.

might well extend over a thousand, a hundred, or ten years in different eras or among separate nations. Again, therefore, there is if not support for the idea of "law," at least no disconcertion in the fact that the past quarter century on the whole evinces distinctly more rapid and extreme variations of fashion than the half century preceding. This is the case for every feature examined except shoulder width.

CONCLUSIONS AS TO CHANGE IN CIVILIZATION

The fact of regularity in social change is the primary inference from our phenomena. The amplitude of the periodicities is of hardly less importance. Their very magnitude dwarfs the influence which any individual can possibly have exerted in an alteration of costume. Were each rhythm confined to a few years, it might be thought that a mind, a particular genius, was its motivating impulse; and the claim would certainly be asserted by those who like to see history as only a vast complex of biographies. But when a swing of fashion requires a century for its satisfaction, a minimum of at least several personalities is involved. No matter how isolating one's point of view, how resistant to a social or super-individual interpretation, how much inclined to explain the general from the particular and to derive the fashions of a world from the one focus of Paris, the fact remains that a succession of human beings have contributed successively to the same end. Once the existence of tendencies or forces transcending the limits of organically inherited personality is thus admitted, the entire field of the history of civilization becomes disputable ground for the two conflicting interpretations. If the major swing of skirt proportions during the nineteenth century is the product, wholly or partly, of super-individual causes, it becomes a valid speculation whether the smaller developments are not also due to similar mechanisms. The re-introduction of the train in 1863, the invention of the Grecian bend in 1872, may now be looked upon as the product of the dress styles that preceded them, or of other cultural factors affecting style, more justifiably than they can be attributed to the talent of a specially gifted mind and hand. The wedge has entered.

It is also evident how little even the intensest individual faculty can have added to the outcome of the greater revolutions, how little hastened their momentum. When a tide sets one way for fifty years, men float with it, or thread their course across it; those who breast the vast stream condemn themselves in advance to futility of accomplishment. A designer born with an inextinguishable talent for emphasizing what we may call the horizontal as opposed to the vertical lines of the figure, and maturing twenty-five years ago, might have possessed ten times the genius of a Poiret or Worth: he would yet have been compelled to curb it into the channels which they followed, or waste it on unworn and unregarded creations. What it is that causes fashions to drive so long and with ever increasing insistence toward the consummation of their ends, we do not know; but it is clear that the forces are social, and not the fortuitous appearance of personalities gifted with this taste or that faculty. Again the principle of civilizational determinism scores as against individualistic randomness.

It would be extravagant to infer that these conclusions deny the validity of superior minds, or even that they tend to minimize the differences between genius and mediocrity. There can be no questioning the universal experience that there are competent individuals and incompetent ones, and that the gulf between their extremes is vast. The existence of varying degrees of intellectual quality does not touch, one way or the other, the finding that there operate super-individual principles which determine the course of social events. The content of history as a sum and in its parts, so far as these have civilizational meaning, is the product of such principles. Whether individual *X* or individual *Y* is to have the larger share in bringing one particular product of his culture to fruition, depends on their respective native endowments, plus a greater or less modification by their educations, personal environments, and settings of circumstance. For the career of *X*, it is obviously of the greatest importance that his heredity and opportunities be more favorable than those of other individuals. On the contrary, given this advantage, it will very little affect his success in life whether his society be moving from polytheism to mono-

theism, from monarchy to democracy or democracy to tyranny, from bronze to iron, from the wearing of wide skirts to narrow, or the reverse.

Conversely, so far as these social changes are concerned, it can well be argued on theoretical grounds that the greater or less innate capacity of this or that individual, or of any limited number of individuals, is of negligible consequence. That this factor is actually negligible from the aspect of civilization, the analysis of the data here presented goes to show. In short, monotheism arises, an iron technique is discovered, institutions change, or dresses become full at a given period and place—subsequent to other cultural events and as the result of them, in other words—because they must.

Historians may have been chary of asserting such a principle; but the greatest minds among them have time and again accepted it implicitly, though vaguely. This is as true of Thucydides as of Gibbon, and explains why Herodotus was as much interested in ethnology as in anecdotes, and Tacitus could place a *Germania* beside his *Annals*.

Among the commonalty of men, such a recognition has not obtained, and does not now hold. What above all they are interested in, is their own lives and fortunes, their own feelings and acts, their competitions with other individuals and personal relations to them. Therefore, when they listen to history, or tell it, they look for what history can reflect that is similar; and what it offers of psychology and morality in its biographies, or those of its parts which can be distorted into dramatic crises or romantic tales, they seize with avidity.

The satisfaction of these interests has its justifiable function; only it prevents instead of cultivating an understanding of the workings of civilization. The individualistic view of historical phenomena is in its nature subjective, and its treatment must always remain subjective. To find "law" in the infinite intricacy of millions of inter-playing personalities is hopeless. We can not even begin to get the facts as they happened. A geologist could as usefully set himself the task of explaining the size and shape of each

pebble in a gravel bed. We are but such stones. Being human, we cannot however divest ourselves of inquisitiveness about other human beings as human beings, nor of inquisitiveness into their morality and psychology and of the desire for an aesthetic representation of their actions. Only, the pursuit of such impulses does not lead to knowledge that is scientifically applicable; nor to a comprehension of what lies beyond ourselves as individuals; of that which touches and permeates our lives at all moments, which is the material on which our energies are released, which could not be if we did not exist, but which yet endures before and after, and grows and changes into forms that are not of our making but of its own definite unfolding. Our minds instinctively resist the first shock of the recognition of a thing so intimately woven into us and yet so far above and so utterly uncontrollable by our wills. We feel driven to deny its reality, to deny even the validity of dealing with it as an entity; just as men at large have long and bitterly resented admitting the existence of purely automatic forces and system in the realm that underlies and carries and makes possible the existence of our personalities: the realm of nature. The center of our interests must always be personal. Yet this pivoting has not prevented an increasing realization of objectivity; nor will it prevent the realization that objectivity is to be found on levels beyond us in both directions, instead of one only. The super-organic or superpsychic or super-individual that we call civilization appears to have an existence, an order, and a causality as objective and as determinable as those of the subpsychic or inorganic. At any rate, no insistence on the subjective aspects of personality can refute this objectivity, nor hinder its ultimate recognition; just as no advance in objective understanding has ever cramped the activity of personality.

BERKELEY, CALIFORNIA.

SOME GAMES OF THE BOIS FORT OJIBWA¹

By ALBERT B. REAGAN

EDITED BY F. W. WAUGH

INTRODUCTION

THE following notes are descriptive of a number of games played by the Ojibwa of Bois Fort, Minnesota, and were made by the author, Mr. Reagan, during his term of office as Indian agent at the locality named.

Practically all the games mentioned have a very wide distribution, a fact too well known to require further elaboration, and of which some indication is to be found in such memoirs as that of S. Culin (*Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03).

Mr. Reagan's phonetics, though evidently somewhat inaccurate, have been retained; and, where possible, the words given have been compared with similar terms from Baraga's "*Grammar and dictionary of the Otchipwe language*," Montreal, 1878.

The games may be divided into: (1) games of chance, which include the two dice games and the game of moccasin; (2) games of dexterity, which are also dependent in part upon the physical strength of the players, and which include the games of snow-snake, double ball, lacrosse, and shinny.

F. W. W.

THE GAME OF PAH-GAY-SAY, OR BOWL².

This game is usually played for the purpose of gambling. It is played either by two individuals, or by two sets of players, the Indians often wagering all they have.

¹ [This paper is based on specimens and manuscript material purchased by the Division of Anthropology of the Geological Survey of Canada in 1912 from Mr. A. B. Reagan, then U. S. Indian agent at Bois Fort, Minn. The paper is here published by authorization of the Geological Survey of Canada. Thanks are due to Mr. F. W. Waugh, of the Division of Anthropology, for his editorial work, and to Mr. O. E. Prud'homme, artist of the Division, for the drawings. E. SAPIR.]

² Baraga gives:

Pagesse (nin). I play the dish game.

Pagessewin. Dish game.

A large, rather shallow, symmetrical, nicely finished hemispherical bowl is one of the requisites; the others are the dice and the counting sticks.

The bowl is made from a large, round nodule of maple root, and is consequently a rare and expensive article for its size. It is fashioned solely with the aid of an axe and a knife. A specimen at hand measures nine inches in diameter at the top and is two inches in depth. It is nearly one inch in thickness at the bottom, but gradually tapers to about one-fourth of an inch at the rim (fig. 23).

The dice consist of eight thinly cut pieces of deer-horn (or bone). These are marked with rather deep criss-cross grooves on one side,

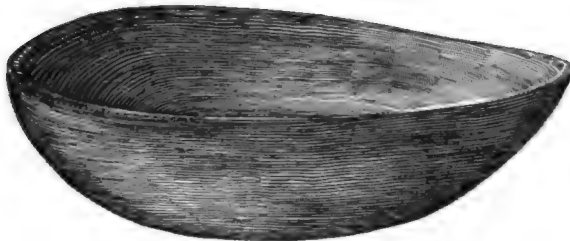


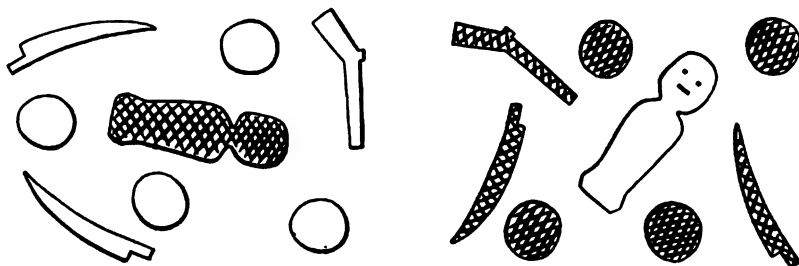
FIG. 23.—Bowl for dice game. (No. III. G. 130a.)

which is also stained black, the other side being left its natural color. Four of these are round and about three-fourths of an inch in diameter. All of the dice are less than one-sixteenth of an inch in thickness. Two of the dice are knife-shaped, one and one-half inches in length, and one-fourth of an inch in width. Another is shaped like a gun, is one and one-fourth inches in length, and one-fourth of an inch in width. Another consists of the crude image of a person and has eyes and mouth marked on the unpainted side. It is one and one-half inches in length, the width being about one-half inch at the shoulders (figs. 24 and 25).

The counting sticks are eighty in number. They are about a foot in length and one-fourth inch in thickness. They are usually made of trimmed sticks of spruce or other wood, though twigs are sometimes used. Half are colored black, and the remainder red.

The sticks are placed between the players in two piles when a

game is about to be played, one pile belonging to each side; or sometimes the sticks are placed all in one pile. In the first case, the winner draws directly from his opponent's pile for every count he gains. In the second case, both players draw from the central



FIGS. 24 and 25.—Dice used in bowl or dice game, showing two of the highest plays. (No. III. G. 130b-i.)

pile till it is used up; then the winner draws from his opponent's pile until it is all taken. The player (or set of players) who gets the eighty counting sticks in his possession has won the game.

When the players sit down to play, the bowl containing the dice is placed on a blanket between them. Bets are then made. Then the player who won the last game begins the game with a song. If no previous game has been played, lots are cast to see who will play first. Then, at a propitious moment, the player strikes the bowl on the blanket by lifting it slightly and setting it down with a quick jerk. This causes the dice to fly upward and fall back in various positions, some of the faces becoming reversed, which, of course, changes their counting values. As they settle to the bottom of the bowl, the result is watched with keen interest. The play is continued in this manner until the game is won.

The following are the rules for counting:¹

1. One white circular face up, all other faces black . . . 1 point.
2. One black " " " the rest white 1 "
2. Two black " faces " " " " 2 "

¹ Stewart Culin, *Twenty-fourth Annual Report, Bureau of American Ethnology*, p. 62, illustrates a similar set of gaming articles.

Different numbers and forms of dice from nearby reserves are illustrated or described, *ibid.*, pp. 62, 63, and 65-68; also various methods of counting, including quotations from Carver, Schoolcraft and others.

4. Three black circular faces up, the rest white..... 3 points.
5. Three white " " " " " black..... 3 "
6. Four " " " " " " " "18 "
7. " black " " " " " white.....18 "
8. All black faces up.....18 "
9. All white " ".....18 "
10. White faces of image and gun up, the rest black..... 4 "
11. White faces of image, gun and one knife up, rest
black..... 9 "
12. Black faces of image, gun and one knife up, rest
white..... 9 "
13. White faces of gun and one knife up, rest black..... 7 "
14. Black faces of gun and one knife up, rest white..... 7 "
15. Black face of one knife up, the rest white..... 5 "
16. White face of one knife up, the rest black..... 5 "
17. Black faces of two knives up, the rest white.....15 "
18. White " " " " " " " " black.....20 "
19. White " " knives and gun up, the rest black....12 "
20. Black face of image up, the rest white (fig. 24).....20 "
21. White face of image up, the rest black (fig. 25).....40 "

Terms used in the game of bowl:

Pug-gah-tsah-nik, the dice used in playing the game.

Was-sung, the piece shaped like a person.

Pash-kish-she-gun, the piece shaped like a gun.

Wah-wun, the circular piece.

Me-te-o-nah-gun, the bowl in which the dice are tossed.

Baraga gives "*mitig-onâgan*," meaning "a wooden dish."

Mi-ti-go-san, the sticks used in counting.

Pesshig—1 (Baraga gives "*bejig*").

Neish—2 (" " "*nij*").

Niswi—3 (" " "*nisswi*").

Niwin—4 (" " "*niwin*").

Nanan (" " "*nânan*").

Nish-shwa-swi—7 (" " "*nijwâsswi*").

- Shan-ga-swi*—9 (Baraga gives "*jāngasswi*").
Ashineish—12 (" " "*midāsswi ashi nij*").
Shinanān—15 (" " "*midāsswi ashi nānan*").
Ashinishwaswi—18 (" " "*midāsswi ashi nishwāsswi*").
Neish tunna (or *tanna*)—20 (Baraga; "*nijtana*").
Nimitanna—40 (Baraga; "*nimidana*").
Pug-galy-tsay-tah, let us play the dice game.
Ke-duck-ke-ne-win, I have won the game.

MOCASIN GAME

The moccasin or bullet game is a very popular one among the Bois Fort Ojibwa. It is so popular, in fact, and so much money is squandered on it, that the government has had to put a stop to it. Among these people it is one of the worst of gambling games, and not only the idle, but the industrious Indians play at it. Indians have frequently drawn their annuity payments for themselves and families and have then gone back of the dance hall, or some convenient place nearby, and have gambled the whole of the money away before getting up. One side may put up a saddle or a set of harness that it will win the game. The other may put up a horse. The betting goes on in this way until they have staked practically all they have. Indians working at log-driving have been known to sit down after a hard day's work and gamble away even their shoes, socks, and shirts and then go to work next day without these articles. When the game is once begun it continues until one side or the other has won. All day and all night the Indians will play until one side has lost all, or fatigue induces them to sleep.

This form of gambling reached a climax two years ago when I asked the Indians not to gamble at the time of the annuity payment and furnished them with an agreement to sign to that effect. The agreement read:

We, the undersigned Indians of the Nett Lake Indian village, hereby agree not to gamble on the day on which the Agent pays the Indians their annuity money at this place, and for ten days thereafter, as the money should be spent for the benefit of our families. We further agree to aid the Agent in preventing gambling at this place, the Nett Lake Indian village, during said time. We further agree that no one will interfere with an officer sent to enforce this order. We understand the purport of this paper and freely agree to its stipulations. Signed . . .

The Indians in council, however, not only rejected the foregoing request, but heaped abuse upon me for asking them to save their money for their families. I therefore at once stopped the gambling by police force, in compliance with instructions given me by the Washington government.

The game is called *mah-ke-tse-nah-tag-tim*,¹ because it was first played with moccasins as the articles under which the concealed things were hidden.

Four moccasins,² mittens, gloves, pieces of buckskin, socks, or almost anything which will provide a means of concealing the gaming articles; four bullets, plum seeds, or any other small objects of the kind; a blanket stretched and pegged down upon the ground or floor; a couple of striking sticks (to which a mystical or magical quality is attributed); a drum and sticks; and twenty counting or tally sticks, are the requisites of the game. One of the bullets is marked; the others are unmarked.

The twenty tally sticks usually consist of pieces of wood split to about the thickness of a match and about six inches in length; although sticks or twigs of any kind are sometimes used. At the beginning of the game each player takes ten of these, and has won the game when he has all of them in his possession. It is possible for a player to win ten points consecutively, which would win him the game.

The game is played by two as principals and any number of others as assistants. One or more other Indians also beat the drum, or drums, as the case may be. One or more Indians, also, of the side which is playing sing a rather nasal song pitched according to the enthusiasm of the players (fig. 26). When all is ready, the bets are made and the tally sticks divided ten to a side. A toss of two sticks is made and the winner plays first. The holder of the bullets then places the four moccasins on the blanket before him upside down and about six inches apart, with the toes pointing forward. He now lifts each moccasin and places a bullet under it in succession,

¹ The first part of the word is evidently from *makisin-a* moccasin (Baraga).

² Four seems to be the usual number, though three are mentioned as having been used among the Mississauga of Rice lake, Ontario, by G. Copway, *The Traditional History and Characteristic Sketches of the Ojibway Nation*, London, 1850, p. 48.

in such a way as to prevent his opponents from detecting under which he has put the marked bullet, if he can. Just before doing this he takes the bullets in his hands, and joining the chant, shakes them, and makes many pretences at hiding them and removing them, as he lifts the moccasins with his left hand and places his right beneath. Also, to confuse his opponents, he sways his body from side to side and goes through almost every sort of contortion until he has finally concluded the hiding. He then suddenly holds up both his hands, palms upwards and calls out an explosive "ho!" in a high note. The opposite side now takes up the chant, which, if continued by the side which has hidden the bullet, drops to a low murmur. The guessing then begins. The striker of the opposing side raises his wand threateningly over first one and then another of the moccasins. He pretends he is going to strike a moccasin, but withdraws as if in doubt. This is done to see if by some move, act, or change of color of the opposing player it can be detected under

Melody of doubtful player



Melody of confident player

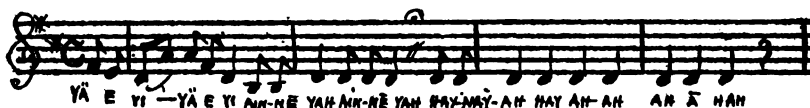


FIG. 26.—Moccasin-game song. (Music transcribed by Albert Gale.)

which moccasin he placed the marked bullet. Suddenly with one end of the stick he turns a moccasin over. If the marked bullet is not under this one, he usually turns over another. If he should find the marked bullet under one of the moccasins he has overturned, the moccasins are turned over to him and his side begins to hide the bullets and the other side begins to guess. In some of the games I have seen, wands and drums are also changed to the opposite side.

The rules for counting are as follow:

1. If the marked bullet is not found under the first moccasin turned over, six points are counted against the guesser.

2. If the marked bullet is not found under the second moccasin turned over, four points are counted against him, provided that both were outside moccasins.

3. If the striker turns over a middle moccasin and then an outside moccasin and the marked bullet is found under the other outside moccasin, eight points are counted against him.

4. If a striker makes a miss and the bullet is found under either of the outside moccasins, he gives three sticks to his opponent; if found under either of the two inner moccasins, he gives his opponent two tally sticks.

I have also seen the game played differently. Every time the striker failed to locate the marked bullet, it counted one against him and he gave his opponent one of his tally sticks, until his tally stick pile was exhausted and his opponent had the game. If he succeeded in finding the bullet, he simply had the bullets and the moccasins turned over to him and his opponent began the guessing.

When a game is completed, bets for a new game are usually immediately begun.¹

CHILDREN'S DICE GAME, SHA-MAH-KE-WAY-BE-NE-KOH-NUNG²

This game is played by the children for pastime only. The requirements are four flat sticks, each about eleven inches in length

¹ Other slightly varying methods of playing and counting are given in the *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, pp. 340-342.

Mr. Reagan gives the following description of an Apache moccasin game for comparison:

The noise and din of the game were the same, also the game song—though the words were different, of course; but the tune and the manner of singing it were very similar.

With the Apache the game is a nocturnal one, and as a rule is played by the men only. There are two ways of playing the game. In the one, each side has seven holes which are dug in the earth to the depth of about six inches. These are filled with leaves or pounded bark, and the ground in the vicinity of the holes is also covered with the same material, until the holes are practically hidden from view. In the other method of playing, the bullet is hidden in mounds or ridges of dirt. In each case the player guesses in which hole or mound the bullet is hidden. Otherwise the game is played much the same as with the Bois Fort Ojibwa.

² This is evidently a variant of a stick dice game still known among the Bois Fort Ojibwa, since specimens and data in this connection were collected by Dr. Wm. Jones in 1903 (see *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03,

and half an inch in width at the middle, from which they taper slightly towards each end. On one side the sticks are painted white, or left the natural color of the wood. On the other, they are painted black or blue, and diagonal cuts are carved from side to side for decorative purposes (fig. 27).

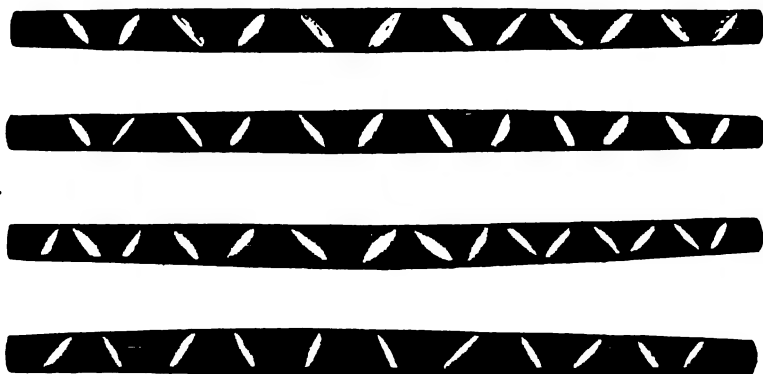


FIG. 27.—Sticks used in children's dice game. (No. III. G. 139a-d.)

In playing, the sticks are tossed or struck on the ground, the points being determined by the way in which they fall. Any number of children may play, each playing for himself.

The rules for counting are:

1. If all the white faces of the sticks turn up when they are tossed the player counts one point and is entitled to another toss, the latter being the case with all successful throws.
2. If all the black faces turn up, a point is counted for the player (fig. 27).
3. No other counts are allowed, and when any player has won ten points he has won the game.

THE GAME OF SNOW-SNAKE

This was played on either ice or snow. The players, as a rule, made a long ridge of snow. On the top of this they made a little furrow.

p. 61). The sticks mentioned are four in number and are marked alike in pairs. The method of counting given by Dr. Jones is: Four points on a flush; two points on a pair of striped sticks; twenty points on (pair of) sticks with medial band and X's.

Descriptions of this game as played by neighboring bands of Ojibwa are given *ibid.*, pp. 63, 64.

The stick usually consisted of a straight wand of hardwood with the bark peeled from it. This was from three to five feet in length as used by adults. In thickness it ranged from one-half to three-fourths of an inch in thickness. When being played, the stick was shot endwise. The front end was dubbed the head, while the end which was grasped in the hand was called the tail. In some cases the head was round and bulb-like and like a snake's head, with a cut to denote the mouth. It also had eyes. In other cases the head end of the stick was bent upward to imitate a running snake, and was also carved to carry out the similarity. Other markings along the stick served to represent the stripes. The turned-up end permitted the snow-snake to pass over slight irregularities in the path and also to ascend the purposely-made ridge¹ which crossed the latter transversely a short distance from the player² (fig. 28).

In playing or putting the snake, the player grasped the tail by placing the forefinger of the propelling hand at the end, the stick

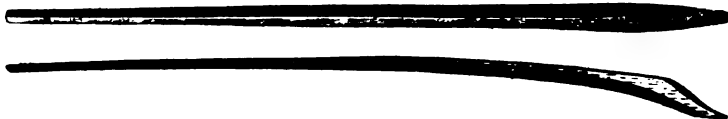


FIG. 28.—Snow-snake used by adults. (No. III. G. 133b.)

being supported by the thumb on one side and the three remaining fingers on the other. Sometimes the snake was allowed to lie lightly across the semi-closed fingers of the other hand as a support at about the balancing line.

When ready, the player stoops forward towards the ground, and with the snow-snake held horizontally, thrusts it forward,

¹ J. G. Kohl in *Kitchi-Gami*, London, 1860, p. 90, remarks: The Indians are also said to have many capital games on the ice, and I had the opportunity, at any rate, to inspect the instruments employed in them, which they call *shoshiman* (slipping sticks). These are elegantly carved and prepared; at the end they are slightly bent, like the iron of a skate, and form a heavy knob, while gradually tapering down in the handle. They cast these sticks with considerable skill over the smooth ice. In order to give them greater impulsion, a small, gently rising incline of frozen snow is formed on the ice, over which the gliding sticks bound. In this way they gain greater impetus, and dart from the edge of the snow mound like arrows.

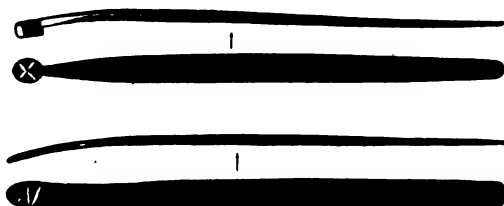
² A number of forms of snow-snake used by the Ojibwa are shown in the article by S. Culin, *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, p. 402.

causing it to glide over the snow rapidly for a considerable distance.

The object of the game is to see which player can propel his snow-snake the farthest and still keep it in the snow furrow.¹

CHILDREN'S SNOW-SNAKE GAME, TSHO-SHE-MON

This was played wholly by the children. The snow sticks were about a foot in length and the object was to see which player could send his stick farthest down an incline composed of the side of a



FIGS. 29 and 30.—Snow-snakes used by children. (No. III. G. 134a-b.)

snow bank, and also to give it the straightest direction. This was great sport for the children² (figs. 29, 30).

GAME OF SNOW STICK, OR QUASH-QUAY-SHE-MUNG

In this game, a stick about two feet in length is used. This is of a cigar or club shape, very much larger at one end than at the



FIG. 31.—Snow stick; used by adults. (No. III. G. 132.)

other and tapering away gradually at the smaller end. At the thickest part it is about two inches through. It is made of very

¹ The game of snow-snake has an extremely wide distribution and is found among practically all the Algonkian tribes living in localities suited for the purpose. These include the Cree, Gros Ventre, Menomini, Sauk and Fox, Arapaho, Cheyenne, as well as those of the Maritime Provinces of Canada and of northern Ontario and Quebec. For details regarding these and other tribes, see S. Culin, *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, pp. 399-420.

² For a description of a children's snow-snake game, see *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, p. 402.

The sticks used in this game were of the same type as those employed by adults.

light wood, such as cedar, and is called "snake stick" by the children. It is thrown over the snow with full force "just to see it go"¹ (fig. 31).

LACROSSE, OR BAUG-ÄH-UD-O-WAY²

Lacrosse was a favorite game at Bois Fort in olden times, and is still occasionally played, though it does not seem to have been taken so seriously as among the Menomini and among various other tribes or bands of Ojibwa.

From one Indian here, Nebedaykeshigokay, George Farmer, I find that the game was played quite frequently thirty years ago on Rainy lake, near the present town of International Falls. These games were between the Bois Fort Indians and the Canadian Ojibwa living about Rainy lake. Much property was bet on the games and it is alleged that the Bois Fort players usually won.

The games at Rainy lake were played on the ice. There was a goal on each side of the narrowed-in lake at this place. The goals consisted of a large post or pole set up at the shore of the Canadian side and a similar one on the American side. The object of the game was to put the ball past the opponents' goal post. If the game was not played on the ice, a level spot of ground was chosen for the purpose.

In many respects the game resembled our football. The ball was about the size of a common baseball. The cover was made from a piece of moosehide. This, when nearly sewn up, was moistened and stretched and stuffed tightly with deer hair, the sewing being done with sinew. Each player had a playing stick about the length of our baseball club, but considerably lighter. At the end opposite the handle was a circular pocket made by bending the stick into a circle about four inches in diameter. Some, however, had a stick of about the same length, but bent like a shinny stick, and having a network of thongs extending from the bent portion to about half-way along the straight part of the handle.

¹ See *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, p. 403.

² Baraga gives:

Pagaadowewin. Indian ball-play.

Pagaddowanak. Indian crosier to play with.

Pikwakwad. Playing-ball (primary meaning; a knot or knob on a tree).

Another form of stick had the catching pocket made of leather (moosehide). The ordinary form (first mentioned) was of ash. The ball-catching end is a continuation of the wood of the stick itself. Just before reaching the club end it is slightly thickened. From here it is pared down quite thin, and, after being steamed, is bent around to one side and fastened to the handle with thongs in a hoop shape. The hoop is then pierced in the middle in several places and buckskin thongs fastened in these from without and then tied together within in such a way that they form a sort of pouch or basket for catching the ball. In a specimen at hand the pouch is about two and one-half inches deep.

When playing, the player carries the stick almost horizontally before him. With it he catches the ball and moves it from side to side so as to keep the ball in the pocket. While the player with the ball is trying, by constant swinging and twisting movements, to retain possession of it and assist in bringing it to his opponents' goal, the latter are trying in every possible way to knock the ball from the player's racket, or dislodge it by hitting his stick.

The ball, in the games held at International Falls, was placed on the middle line between the goals by a specially appointed medicine man of a disinterested group of Indians who were present. Then, at a given signal, the opposing contestants rushed from their respective goals. The players were nearly naked, with their loose black hair flying to the wind. In a moment all would be struggling in a dense throng for the ball, while furious cries and whoops filled the air and resounded from the distant lake shores. Again they would scatter, as the ball was sent in one direction or another, and again they would mass upon the place where the ball was being rolled or whirled forward by a momentarily successful player. Tripping, rushing, striking their opponents and hurling them to the ground and sending the ball first one way and then another was the order of the moment. All was excitement. The ball was driven farther and farther towards the Canadian goal. Suddenly it soared in the air over the goal of that side and the game was won by the Bois Forts.¹

¹ Various styles of stick, as well as descriptions of the game as given by various authors, such as Alexander Henry, J. Long, W. J. Hoffman, Jonathan Carver, J. G.

SHINNY

Shinny was formerly played by the Indians of Bois Fort, principally by the young boys and the women, so I am informed; though the men also played the game occasionally.¹

The requirements were a tightly stuffed ball, usually of buckskin stuffed with hair; and each player had a stick with a crooked end, the latter being bent cane-handle fashion. The game itself was played much like that of lacrosse.

The following rules are observed:

1. Each side puts up a goal-post with a level stretch of ground between and from 300 yards to one-half mile apart.



FIG. 32.—Lacrosse stick and wooden ball. (Nos. III. G. 138, 137.)

2. No one is allowed to touch the ball with his hands; though almost any other stratagem is allowed.

3. One must not hit another over the head or on the body with either hands or stick.

4. It is fair play to upset a player by running against him, or by falling down in his way.

5. Everyone must keep his temper.

6. Before the game begins, judges are chosen and any claim of cheating must be settled by them.

7. If either side is convicted of foul play, the game is given to the opposite party. There is no appeal from the judges' decision.

8. When one side has driven the ball past the other's goal post, that side has won the game.

Kohl, Rev. Peter Jones, G. Copway and others, are given in the *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, pp. 564-570.

For style of ball and stick collected by A. B. Reagan, see fig. 32. The ball is of wood.

This game also is of very wide distribution in North America.

¹ For distribution and various methods of playing, see the *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, pp. 617-647.

WOMEN'S GAME OF SHINNY

This is a modified shinny game and is played principally by the women. It has not been played much for years. The ball used is some three inches in diameter. It is placed on the center line between the goals and, at a given signal, several contestants from each side rush towards it and each side endeavors to hurl it to the other's goal. At the same time a large number of each contesting side re-



FIG. 33.—Double ball, used in woman's double ball game. (No. III. G. 136.)

main at the respective goals to keep the shinny ball from hitting the post. This game differs from the foregoing in the fact that to win the game it is necessary to hit the opponents' goalpost with the ball.

DOUBLE BALL, OR PUSH-KAH-WAN

Double ball is played by the women only. Three years ago (1909) they played it almost every day at Nett lake throughout the entire summer.

Two balls, each about three inches through or smaller, were used. The covers were of buckskin stuffed with rags. The balls were tied together with a buckskin cord some three inches to a foot in length (fig. 33).

The game resembles lacrosse and shinny very much. Two goals are made and the players carry a stick in each hand. The stick is called *push-kah-wan-nok*, and is straight, not crooked as in shinny (fig. 34). The balls are thrown into the air by catching a stick under the connecting string and tossing them forward or backward over the head. Every trick and stratagem of the games of lacrosse and shinny is indulged in.



FIG. 34.—Stick used in woman's double ball game. (No. III. G. 135.)

The object of each contesting party is to toss or pass the ball over the opponents' goal. It is very interesting to see forty women on a side playing this game.¹

KAYENTA, ARIZONA.

¹ For distribution and descriptions of the double ball game as played among various tribes, see *Twenty-fourth Annual Report, Bureau of American Ethnology*, 1902-03, pp. 647-665.

INCREASE BY MAGIC: A ZUFI PATTERN

By ELSIE CLEWS PARSONS

ON the first day of the winter solstice ceremonial, men plant feather-sticks to the old ones (*aklashinawe*), i. e., the dead, and to the sun; and women to the dead and to the moon. Five days later, men plant to the *koko*, the masked impersonations, and for *utenawe*, property. On this day the saint begins to lie in (*santu chalia*, saint, childbirth) for four days. The night before *santu chalia*, i. e., Christmas eve, small clay figures of sheep, horses, donkeys, cows, chickens, of chili and melons, of bracelets, and of gold and silver coins are placed around the *santu* to be left there during the following four days when they are taken home and kept during the year, or, in case of the animals, buried near the corals. The people of *shiwanni* (rain priest) houses do not take their figurines to the house of the *santu*, but place them on the *teshkwin* (altar), the *shiwanni* altar, in their own house. Here they also place in clay holders cuttings from peach trees on which are stuck peaches made of cornmeal and colored with a red stone.¹ Subsequently, the peach tree cuttings may be taken back to the orchard and planted. The meal peaches together with meal models of corn ears² are eaten by the children. The children believe the peaches have grown over night.

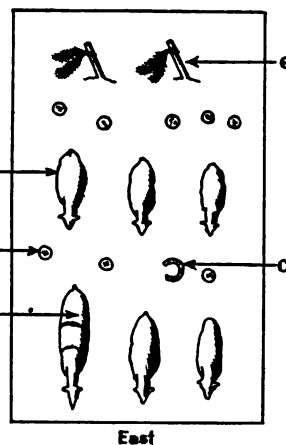


FIG. 35.—Subterranean shrine in *onakwe ashiwanni* house, Zufii. a, horse with saddle; b, sheep; c, bracelet; d, gold and silver coins; e, feather sticks.

¹ See M. C. Stevenson, "The Zufii Indians," *Twenty-third Annual Report, Bureau American Ethnology*, pl. xxxv (1901-2). Stevenson appears to have misinterpreted the meaning of the "offerings" of "thanksgiving."

² Wheat too may be represented on the altar.

The clay figurines are placed in a shrine hole under the floor. The subterranean shrine I saw was in a room next to the ceremonial room of the *ashiwanni* and near the closet in which masks and other sacrosanct objects were kept. After the stone slab, about 2 feet x 1 foot, was lifted off, the foot-deep shrine appeared as in the diagram (fig. 35).

The figurines were like those figured in fig. 36 which were made for me by a man living in this same *shiwanni* house. The two feather-

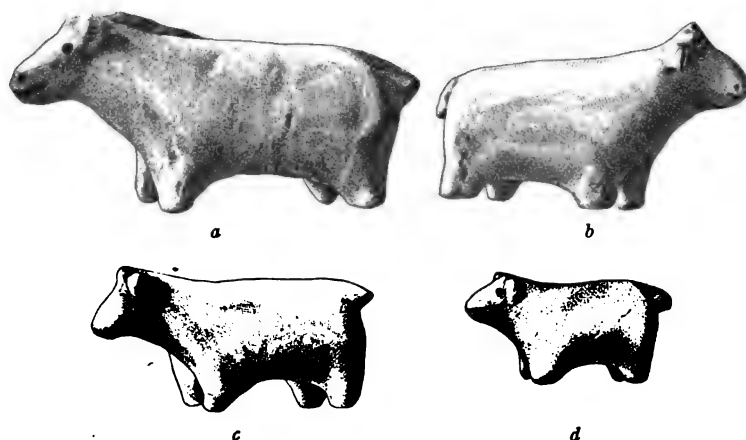


FIG. 36.—Zufii figurines. In American Museum of Natural History. *a*, horse (50.2-1211a); *b*, cow (50.2-1211b); *c*, sheep (50.2-1211c); *d*, lamb (50.2-1211d). Size $\frac{1}{2}$.

sticks in the shrine¹ were for *poshaiyanki*, the mythical giver of domestic animals and of wealth (*utenawe*). I am fairly certain that the feather-sticks for *utenawe* (fig. 37) are the same as those for *poshaiyanki*.² According to one informant, the *poshaiyanki* sticks are planted at night, the night following the first day of the winter solstice ceremonial—the only sticks planted in night time—according to another informant, they are planted at sunrise,³ the

¹ The same sticks had been in the shrine for three years.

² Cf. the feather-sticks offered by the Hopi for the increase of sheep. (Solberg, O., "Über die Bahos der Hopi," p. 68. *Archiv f. Anthropologie*, N. F., vol. IV (1906). That one of the Hopi sticks is in the shape of a cross (pl. XXIII, 30) may not be insignificant in view of the confusion or identification of *poshaiyanki* with Jesus.

A prayer stick with a cross bound with red wool is offered by the governor of Laguna and his officers.

³ Under a slab in a field by the heads of each society.

sunrise following the night all the societies are engaged in curing, the fourth night of the winter solstice ceremonial, the same night the figurines are taken to the *santu* or set out on the altars of the *ashiwanni*.

The figurines and the rite in general is referred to as *itsumawe*—*santu itsumawe* or *shiwanni itsumawe*. The rite is for the increase of all the objects represented. A rite for the increase of children or the development of an unborn child is also referred to as *itsumawe*. During a dance a woman who has had miscarriages may be given a *wiha* (baby) or doll by a *koko* or masked impersonation. The *wiha* is given more or less privately, perhaps in one of the houses on the dance plaza, to the would-be mother. The *koko* dancer says to the woman,

lil toman ho teapkunan itsumakye
here you I children make *itsuma*

The woman breathes in (*yechu*), sprinkles sacred meal on the *koko*, and gives him some bread. Subsequently the *wiha*, together with the cradle board sometimes given with it, may be carried by the woman secretly under her blanket when she goes outdoors.¹ Once as we were talking of this practice, a little boy, the nephew of my informant, came into the room, and I was told that before his birth the child's grandmother had taken an old *wiha* in her possession and given it to *koyemshi awan tachu* to dress as the mask *hututu* and to give to her expectant daughter. The doll was given to the young woman, herself a *shiwanni*, in the house of her mother's brother on the dance plaza. Of this *itsuma wiha* the little boy was exhibit one; exhibit two was the doll itself, *hututu wiha*. It had been kept as "the heart" of the child, and in this case as in many others enquired into, the family

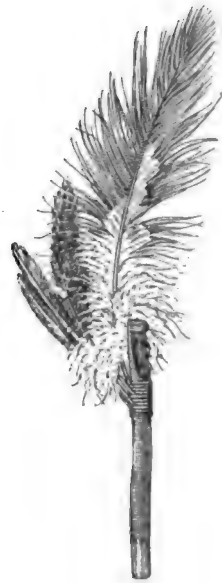


FIG. 37.—Feather-stick for *ulenawe*. Facet yellow with three black dots. The rest of stick blue (50.2-365e). Size 2/5.

¹ For a like practice at Cochiti, see Noël, Dumarest, "Notes on Cochiti," *Memoirs, American Anthropological Association*, vol. VI, no. 3..

would not think of parting with what appears to be a kind of life token. Were they to sell the *wiha*, the child "it brought would not live."

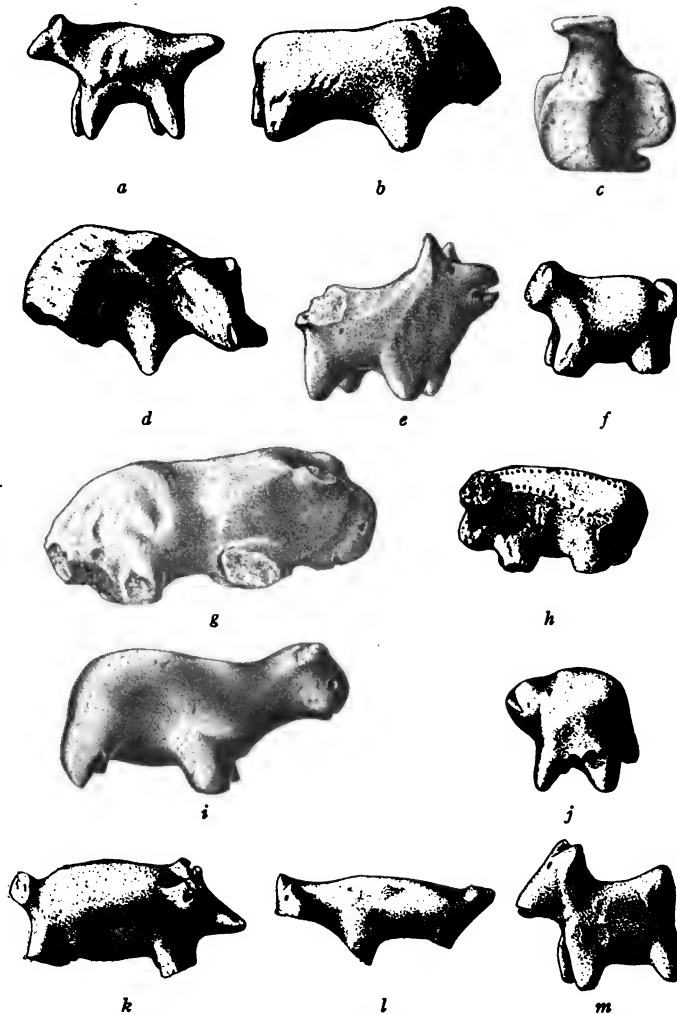


FIG. 38.—Figurines from Hawikuh. In the Museum of the American Indian, Heye Foundation. Notable in *b, f, i, j, k*, are two perforations indicating that the object was to be hung or attached. In *k*, the perforations are through the ears, in the others, in chest and under tail. (*a-i*, size 1/2; *j-l*, size 5/8; *m*, size 1/1.)

Human reproduction may be associated also with *shiwanni itsumawe* rites. I heard of one woman at least, who had brought a

clay figurine of a baby (*wiha*) to a *shiwanni* winter solstice altar. However, she did not get a baby because she did not go on bringing gifts to the *ashiwanni*.

Is the *itsumawe* ritual of Spanish provenience? Its association at Zuñi as well as at Acoma¹ and Laguna² with the *santu* cult and, at Zuñi, with *poshaiyanki* also, a personage associated with Christian lore,³ is highly suggestive of Spanish origin. On the other hand in the excavations at Hawikuh, one of the Zuñi towns at the coming of the Spaniards, figurines (fig. 38) which are like the modern Zuñi figurines are found, Mr. Hodge tells me, in refuse heaps at all levels, pre-Spanish as well as post-Spanish.⁴

Moreover, in a prehistoric pueblo in Southern Arizona, Cushing collected a set of figurines (fig. 39) of similar workmanship. Of these Cushing reports that beneath the floor of a hut outside the pueblo were found

disposed precisely as would be a modern sacrifice of the kind in Zuñi, the paraphernalia of a herder's sacrifice, namely, the paint-line encircled perforated medicine

¹ See E. C. Parsons, "Nativity Myth at Laguna and Zuñi," *Journal American Folk-Lore*, vol. xxxi (1918), p. 260. The rite of increase occurs among the Hopi, who are said to have buried their saint when the Catholics were dispossessed in the Great Rebellion. With no Spanish saint to whom the rite might attach, nevertheless it is with the Spanish importation that the rite is associated. "In almost every Hopi sheep corral there is a place where clay images of the animals are placed as prayers for the increase of domestic animals. These images are commonly made in the Winter Solstice ceremony and in the Warrior festival that follows it" (J. W. Fewkes, "Hopi Shrines near the East Mesa, Arizona," *American Anthropologist*, n. s., vol. viii [1906], pp. 369-370).

² Christmas Eve, baskets of figurines of sheep, cattle, horses, pigs, chickens, money, peaches, melons, etc., are taken to the church. Subsequently the figurines are buried, the animal models in the corrals, the fruit models in the gardens, and the models of money, etc., under the house floor. The rite is considered "Mexican".

³ "Nativity Myth at Laguna and Zuñi," pp. 261-3. *Poshaiyanki* is a giver of the Spanish brought domestic animals, but in myth he is also associated with deer and native wild animals. An early "culture hero" may well have been assimilated with a Montezuma-Jesus personage. The *suskikwe* or *tsaniakwe* (hunters' society) furnish an example of transition of interest in the wild animals to interest in the domesticated. This society makes medicine for traders to the Navajo, traders in *ulenawe*, horses, beads, etc. The *ulena awan lamma* (valuables, their stick) was also identified for me as the stick the society offers for a hunt.

⁴ In a bin in a house at Hawikuh has been discovered a collection of animal figurines together with rude models of what the Zuñi workmen consider melons, peaches, and coins.

cup, the herder's amulet-stone of chalcedony, and a group of at least fifteen remarkable figurines. The figurines alone, of the articles constituting this sacrifice, differed materially from those which would occur in a modern Zuñi "New Year Sacrifice" of the kind designed to promote the increase and prosperity of its herds. While in Zuñi these figurines invariably represent sheep (the young of sheep mainly; mostly also females), the figurines in the hut . . . represented . . . some variety, I should suppose, of the auchenia or llama of South America.¹

Not to be overlooked in this connection are the clay figurines of very rough workmanship collected from the Cañon de Chelly in



FIG. 39.—One of eight similar figurines in the Peabody Museum of Harvard University.²

central Arizona and now in the Brooklyn Institute Museum (fig. 40, *a-g*). Figures *a-d* are animals of much the same type as the Hawikuh representations. Figures *e-g* appear to be human. The pecking on them is similar to that on figure 38*h* from Hawikuh.

Aside from this archaeological evidence, the *isumawe* concept takes form at Zuñi in what appears to be distinctly native rituals.

At the stick planting of all the society members at the winter solstice ceremonial, a crook stick (*tapone*) is included. It represents a cane and expresses a desire for longevity.² The use of this stick is referred to as an *isumawe* rite. An upright stick sometimes accompanies the crook. It represents a digging stick (*hetseme*) and as it is used because the offerer "wants to be able to use a digging stick for a long time," it is, I infer, a part of the *isumawe* ritual.³

¹ F. H. Cushing, "Preliminary Notes on the Origin, Working Hypothesis and Primary Researches of the Hemenway Southwestern Archaeological Expedition," pp. 177-8, in *Compte Rendu du Congrès International des Américanistes*, Berlin, 1888. Quoted also in *Tenth Annual Report, Bureau American Ethnology*, p. 682 (1888-9).

An outline of a figurine in the same set is reproduced in a report by Washington Matthews on the Hemenway collection in *Publications of the National Academy of Sciences*, vol. vi, p. 156, Seventh Memoir.

² *Cp.* Solberg, p. 65.

³ Stevenson refers to *poshaiyanki* sticks planted at the winter solstice ceremonial

Again at the close of the winter solstice ceremonial, when the *teshkwi* (taboo, sacred,) is over (*teshkwiha*), and, after the mask *shitsukya* passes the house, the refuse accumulated during the ten days of the *teshkwi* (*pochewe*) is carried out, there appears to be an *itsuma* character to the rites. Whoever goes out first after *shitsukya* has passed—he makes his round before dawn—will get the things of those who are still asleep in the house—(*itiwana*, mid-

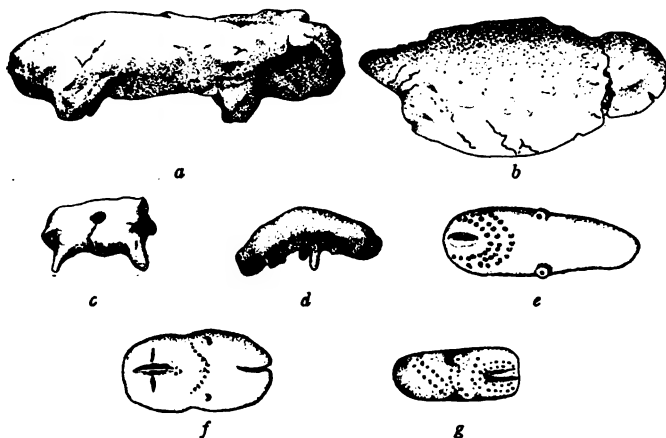


FIG. 40.—Figurines from the Canon de Chelly. In the Brooklyn Institute Museum. *a* (12288) size 1/3; *b* (12301) size 1/6; *c* and *d* (12296, 12295) size 3/5; *e* (10722) size 3/5; *f* (12292) size 3/5; *g* (12291) size 3/5.

dle, *i. e.*, winter solstice, *itsume*, this is called). The next one who goes out will get half the things, the next, a quarter of the things, and so on. (The idea back of this numerical progression is not altogether clear, but I was unable to *préciser*). The refuse or trash is carried out by the man of the house. It represents corn, and he stacks it on the ground as he would the corn he brings in from the harvest. The woman of the house carries out ashes which represent meal and, as she would sprinkle meal at the harvest, she sprinkles the ashes on the ground before stacking and then on the stack. Little boys carry fire brands.¹ Everybody in the house will sprinkle the stack and pray to the Sun as follows:

to which are attached a miniature cane for longevity and a miniature corn planter for increase of corn. ("The Zuni Indians," pp. 119-20.)

¹ As *shulawitsi*, a boy mask, carries a fire brand.

yam	iatsume	yalakwekya	kwa	hoł	tekyalatikya
my		finished	not	whatever	done something wrong
el	osonakya	ho	kole	hoł	hona to awanitso
no	mind	I	done	whatever we	you think about us doing wrong
manamtu					
charge					

This is a prayer for forgiveness for any violation of the *teshkwi*,¹ but the use of the word *iatsume* in the prayer suggests that the winter solstice ceremonial as a whole may be thought of as a ceremonial² for increase.³

Staying awake in the societies the night before *koanne* (god going), the last night of the *koko awia* (god coming) ceremonial (the *shalako*) is also referred to as *itsume*—*itsume telinan* (at night). They who succeed in staying awake will get goods (*utenawe*), the property of those who fall asleep.

NEW YORK CITY

¹ There are several restrictions during the winter solstice ceremonial. There is no telling how a child, for example, may have broken one. Among other taboos a light may not be made out doors. I heard of a little boy of four who scratched a match and whose feather-sticks had therefore to be replanted.

² It is said specifically that if *pocheve* is taken out prematurely they will not get rain, but this is the usual sanction for almost any ceremonial observance.

³ Unless *iatsume* refers strictly to the rivalry in staying awake all night. There is some obscurity about the use of the two terms—*itsume* and *iatsume*. The former appears to apply to increasing by magic, the latter to competing in magic as when groups or individuals vie in producing rain or in assembling animals or in causing or curing disease.

THE KANKAKEE RIVER REFUSE HEAP. EVIDENCE
OF A UNIQUE AND PRIMITIVE CULTURE IN
THE SOUTHWESTERN CHICAGO AREA

By GEORGE LANGFORD

FOR the past ten years I have taken considerable interest in the traces of early Indian occupancy of the region about Joliet, in the western portion of Will county, northwestern Illinois. My observing and collecting has extended from Lockport, twenty-five miles to the junction of the Des Plaines and Kankakee, and a similar distance southeast along the latter river through Wilmington and Rock creek. The evidences of aboriginal occupancy are to be found in abundance in the ploughed fields; pottery fragments, flint and chert artifacts, and implements of polished stone; also occasional objects of silver referable to the Jesuits, and a few copper pieces. More than a score of localities are recognizable as well-defined camps comprising several cultures differing from each other in only slight degree and presenting no features peculiar to this district. One locality, however, may be taken as an exception. Its culture possesses distinctive peculiarities, differing in such a marked degree from that of its neighbors, the conventional type, that it is absolutely unique.

This locality is about eighteen miles southwest of Joliet on the Will-Grundy county line, east bank of the Kankakee river one mile south of where the latter and Des Plaines converge to form the Illinois. At this point the land surface rises ten feet or more above the surrounding area and from it a clear view up and down the river can be obtained. In a sharply defined area extending about two hundred and fifty feet along the bank and one hundred and fifty feet inland the cultivated field is thickly strewn with fragmentary Indian relics. This area prior to cultivation over forty years ago was a broad irregular eminence or mound about two feet high. When first turned up by the plough, the sub-soil of this

particular site, like that of the surrounding country, brought to light many flint and stone artifacts common to this region; but when the mound, or refuse heap as I will call it, was partially reduced to the surrounding level by constant ploughing its contents proved to be something new and distinctive. Local collectors became aware of this fact twenty-five years or more ago. The site was described to me as one of little importance; that is, it produced no large or showy pieces; nothing but pottery fragments, "sheep bones," "palaeoliths," and only one kind of arrowpoint, small, triangular, and unstemmed. Taking these statements for granted, I first visited the locality several years ago and one visit was sufficient to convince me that it was one of extraordinary interest. The Kankakee River bank, clay and shale of the lower coal measures, rises over eight feet high at this point. The ground above it was thickly strewn with splintered and broken bones, chert flakes, and arrowpoints, pitted stones, broken stone adzes (celts), pottery fragments pieces of shell, and abundant evidence of fire.

The most characteristic pieces of the refuse heap are the small, triangular, chert arrowpoints, unstemmed, thin, usually more than twice as long as broad, and well made. The largest is 1 1/2 in. x 11/16 in.; the smallest, 1/2 in. x 1/4 in.; 1 1/4 in. x 1/2 in. is a good average size. Within the refuse heap area they are, or rather were, extraordinarily abundant. Outside of this area none can be found. I estimate that over fifteen hundred of these points have thus far been uncovered in addition to innumerable broken pieces. Another less abundant type is the long slender point or "drill" with and without broad base. Chert spawls and chips lie in profusion mingled with small "palaeoliths"; blanks and rejects of small triangular point manufacture. These rejects are as plentiful as the finished points. Well formed flakes of larger size, knives, adzes, and scrapers, are not uncommon. The few large notched or stemmed arrowpoints discovered within the refuse heap area are similar to those found in adjoining fields. I consider them as intrusions and less ancient than the refuse heap relics. Large and small pebbles, bruised and pitted, are quite common. Of polished stone objects, several broken adzes and one faintly grooved axe or

mallet head are all that I have seen. The adzes are of more cylindrical cross-section and their cutting edges more curved than others common to this district.

Splintered bones and teeth lie everywhere within the localized area. The so-called "sheep bones" were those of deer and elk, every portion of the skeleton being represented. I have picked up over two hundred *astragali* (ankle bones) of the deer alone. In addition, I have recognized remains of turtles, fishes, raccoons, skunks, beavers, muskrats, several species of canids and felids, bears and birds; their abundance being in the order named. Many are those of young animals. Charred and calcined fragments are plentiful. Among them I have recognized a score of utilized pieces, crude, but unmistakable as artifacts of domestic or ornamental utility made from bones, antlers, and teeth of the deer and elk. One elk incisor is notched around its root; deer phalanges cut off square at one end, hollowed and perforated at the other end; antler points 1 1/2 to 2 inches long cut off square; whittled and hollowed sections of femur, and other pieces of a like nature represent the bone artifacts that I have found among the thousands of skeletal fragments, all limited to the refuse heap area.

The most abundant relics of the deposit are pottery fragments—bushels of body and rim pieces, many burned red or showing other evidence of contact with fire. From them I judge that the people of the refuse heap possessed no mean skill in the art of pottery-making and their ideas of ornamentation, although simple, produced a remarkably pleasing appearance in the finished product.

The pieces are generally thin-walled, compact, partially baked, and tempered with crystalline rock, frequently pulverized shell.

In form I judge the pots to be globular, round-bottomed, sharply inturned at the shoulders, necks short and constricted, rims low and flaring outward. In size they range from eight or nine inches high down to three inches, being broader than high. Seven inches tall by eight inches broad would be a good average size. One thick square-edged fragment and one pierced lump are the nearest approach to rectangular rim and handle respectively. The short outward-flaring rims are in some cases notched, in others turned

down at the top to form a circular bead. Many are unbeaded and unnotched and bear pseudo-fabric decoration.

As a rule the base of the pot is smooth and without decoration, the body cord-modeled with crossed pseudo-fabric lines extending from the lower body to the rim, overlain by incised, traced or trailed lines running around the shoulder of the jar. These lines are straight or slightly curved, two or three parallel extending diagonally up and down forming a sort of continuous chevron ornamentation. The incised lines are scribed with a sharp-pointed tool, the traced lines made probably with an antler point and the trailed decoration laid on with the finger. This chevron arrangement is typical, sometimes on a smooth surface but more often on a cord-modeled or pseudo-fabric field. There is no evidence of circular, scroll or other complicated decoration, not even stamp or roulette work.

The refuse heap pottery in no way resembles the thick-walled, coarse, stamp, and roulette, high-collared pottery common to a site near Birds bridge, Troy township, some ten miles farther north near the Du Page river. The former is undoubtedly the work of another and more ancient people.

The negative evidence of the refuse heap points to a pre-European culture. After continued careful search, I have failed to discover a single object in it of metal, glass, or glazed ware. Remains of the horse are conspicuously absent. Incidentally I have found no trace of the bison; of grain or cloth; of stone ornaments, discoidals, "butterflies," or the like. I have discovered the half of one cylindrical stone pipe; none of clay. Except for the few intrusive large stemmed arrowpoints, I believe that all of the objects I have described are the work of one tribe—the people of the refuse heap; a people skilled in the art of pottery-making but of primitive artistic sense; who made and used only one pattern of arrowpoint, well chipped and serviceable, but quite different from conventional types; who knew nothing of metals and used tools of bone and stone, and whose occupancy of the Kankakee river site extended over a considerable period of time. Judging from collections of similar objects I have observed whose cultural definition has been

generally accepted without challenge, I am impressed by certain strong resemblances of the Kankakee River refuse heap relics to those of western New York pronounced as Iroquoian. Possibly the deposit I have described represents an early stage of Iroquoian progress eastward, or possibly an early stage of northwestern aboriginal development throwing some light on the evolution of one or more of our modern Indian races. I am convinced however that the culture of the refuse heap is unique and distinct from any other in this region and that it is purely neolithic without a single trace of European influence.

JOLIET, ILLINOIS

THE ANIMISTIC HYPOTHESIS

By WILSON D. WALLIS

THE animistic hypothesis is inseparably associated with the name of its great formulator, Sir Edward B. Tylor. It consists of the theory that the belief in spirits and in the survival of the soul arose out of dreams and visions in which the absent or the dead were seen, thus giving proof of the ability of the soul to leave and to survive the body.

Since "Primitive Culture" was published the only important contributions to this theory have been made by the Pre-animists, by Hubert and Mauss, R. R. Marett, Andrew Lang, E. Sydney Hartland, and in this country, by Professor Lovejoy. The Pre-animists insist that this formulated psychology is too deliberate to be accepted as representing the initial stage of savage thought, and that this fairly conscious inference was preceded by an unconscious attitude of spontaneous behavior. They do not represent this pre-animism as a preceding stage in any chronological sense so much as a prerequisite of savage thought, a condition interwoven with his animism. Thus they would supplement rather than replace or displace the Tylorian hypothesis.

As an ultimately satisfactory explanation of the belief in spiritual existence and of the persistence of the disembodied soul the Tylorian hypothesis must be deemed unsatisfactory, for reasons which we have briefly outlined below:

The Tylorian hypothesis fails to explain the persistence of the belief even after the savage's philosophy has been completely dissipated. To this a Tylor might reply that survival would adequately account for its persistence, and could point out numberless instances of the survival of a given belief after the conditions on which it was originally based had been completely discredited. The argument is valid so long as it maintains that some survival would be natural. But there are degrees of survival. If it is a

case of mere survival continued by inertia of human thought the inertia will gradually subside due to conflicts with inconsistent phases of thought. A language, for example, cannot be viewed as a mere survival by inertia of the speech used by a previous generation; it persists because it is continually revived and reinvigorated by subsequent generations in some intentional if not logically deliberate manner.

Belief in the post-mortem existence of the soul is a survival which cannot be explained as a mere survival, inasmuch as it is constantly reinvigorated and restimulated long after any such dream philosophy has been abandoned. In fact, I am not sure that you weaken the conviction by destroying the dream philosophy, for this is, after all, not its real bulwark.

Another weakness in the Tylorian theory is the assumption that this dream psychology is an unmotivated and a haphazard psychology, and that its foundations rest on the vagaries of savage thought. Since, however, these 'vagaries' of savage psychology are so wide spread, both culturally and geographically, they must be credited to something deeper than vagary. They must correspond to some profounder motive.

They are, we believe, but the reflex, or the prism, of a deeper philosophy finding expression in this medium.

A PROPOSED NEW BASIS FOR ANIMISTIC BELIEF

We propose, therefore, to treat the theories of the Tylorian and post-Tylorian schools not as false but as stopping short of the ultimate explanation, as but a stage on the way to it, as a study of the image which appears in the mirror of savage belief and conviction rather than as an analysis of the source of the beliefs that are there mirrored. We would bestow no niggardly praise for the exceedingly important contribution of the animists.

As our initial proposition we wish to point out that the belief in survival of the soul may be taken as in part due to the inertia of human thought, or, if you will, as a belief in the continuity of nature. From the fact that we have expected to see a continuation of life in the case of an individual known to us we continue to expect that

existence even when death has claimed the individual. Our thought continues in the old channels whether the object corresponding to it is present or not. No cultures, and scarcely any individuals in any culture, are free from this naïve anticipation of everyday life. Savage philosophy of every day existence exemplifies this principle as fully as does civilization, and savage philosophy of post-mortem existence furnishes many examples. Thus, it is not uncommon for savages to allege that children of very tender years have no soul: they have acquired no socio-psychic existence and they are supposed to have no post-mortem existence. Some of the religions of higher civilization remain vague upon this matter of the soul life of infancy.

Admitting the correctness of the interpretation of the Tylorian school as to the nature of savage psychology we would insist that this dream psychology is not haphazard but is an adumbration, or the vision-echo, of a deep-lying purpose, of nothing less than the will to live. If in some sense this will to believe is tortured into a will to make believe it is not as a result of mere savage vagery, but is the response of a call to self and other preservation. It is simply a case in which the wish is father to the thought, or, in this instance, the dream. Whether Freud would welcome this application of his theory to savagery I am not able to say, but the view that it is applicable can be defended.

If the dream is interpreted in this light we have an explanation of the persistence of the belief in the survival of the soul and we have also the explanation of its universality. The will to live is not only common to all mankind but the illusions that arise from it, the naïve expectations to which it gives rise, are illusions to which we are all susceptible.

Mr. Hobhouse has put forward another explanation of the origin of the belief in the survival of the soul. Instead of saying in our traditional way, "'They believe that the dead continue to live in much the same way and to need the same things; therefore they give them what they need,' perhaps what we should say is rather 'The mass of sentiments and emotions stirred by death impel the mourners to acts of respect, affection, and sacrifice. As they come

to give to themselves or perhaps to their enquiring children some account of these acts they can express their meaning only by speaking of the dead as continuing to live, so that the practice emerges from a sentiment, and, in turn gives rise to the belief that would justify it.'" (*Development and Purpose*, pp. 98-9. Macmillan, 1913.) Mr. Hobhouse supposes the "mass of sentiments and emotions stirred by death" given to start with, whereas the fact calling for explanation is that death does elicit such sentiments and emotions. The explanation, we believe, is to be found in the unconscious focusing of interest and attention upon the future of personality.

In his own case the individual finds it easy to accept the fact of his continued existence and difficult, if not impossible, to even imagine an end to that existence. "Let any one try to imagine himself extinguished—his powers of thought, his feelings, his volitions, his perceptions, broken off,—and he will see how extremely difficult is the task, and how incomplete is his success." (Baring Gould, *Development of Religion*.)

Thus, largely with unconscious intent, by the instinct of self conservation, man is led to believe in immortality. He cannot entertain the idea of letting go that which he now possesses—his existence. Thus, again largely with unconscious purpose, "any idea which can alleviate this dread and lighten, though with the feeblest glimmer, the awful blackness of uncertainty beyond the tomb, has been seized on with eagerness and clung to with desperation."

LOS ANGELES, CALIFORNIA

BOOK REVIEWS

NORTH AMERICA

An Outline for a Chronology of Zuñi Ruins. Notes on some Little Colorado Ruins. Ruins in the White Mountains, Arizona. (Anthropological Papers of the American Museum of Natural History, vol. XVIII, parts III, IV, V.) LESLIE SPIER. New York: 1917, 1918, 1919. 207-387 pp., 21 figs.

The Zuñi district in west-central New Mexico contains a single inhabited village (Zuñi Pueblo) and the ruins of a great number of other villages, large and small. Of these ruins certain ones have been identified by historiographers as the sites of the "Seven Cities of Cibola," which were visited and described by the Spanish conquerors and missionaries of the sixteenth and seventeenth centuries. The majority of the ruins, however, are surely prehistoric; and they differ from each other so much in the state of their preservation and in their pottery, that there can be no doubt that they cover a long stretch of time. The explorations in this district, the results of which are presented in the three papers under review, were undertaken with two cognate objects in view: first, to investigate the relations between the present town of Zuñi and the several nearby ruined pueblos which have been attributed to the Zuñi of the period of the Conquest; second, to study the prehistoric range and cultural affinities of the Zuñi.

Mr. Spier hoped to find such stratified refuse deposits as would enable him to reconstruct the culture history of the region with the same certainty as has been done in the upper Rio Grande by the study of the pottery in the refuse heaps of San Cristobal, San Marcos, and Pecos. In this, however, he was disappointed, for it was found that the great majority of the sites had been inhabited for short periods only, and that consequently there were no refuse deposits deep enough to give a cultural cross-section including all the types of pottery that are found in the various ruins of the valley. At Zuñi Pueblo itself, however, sufficient rubbish was found and excavated to prove that there had been changes in the pottery during the occupation of that site, and to give the author an idea of the nature of those changes. Taking the earliest pottery types occurring there as a point of departure, he worked other similar deposits

at the ruins Mattsakya and Pinnawa and so was enabled to study the pottery changes that took place during a period extending from the present day back to a little before the Conquest.

Armed with this knowledge, he studied the ruins which have been believed by the historiographers to be the "Seven Cities of Cibola." Of these, he found that Hawwikkuh, Kettcippawa, Kyakkima, and Mattsakya were actually inhabited in the sixteenth century; Hallonawa, which has hitherto been considered historic, is on the contrary, surely prehistoric, the Hallonawa of the chroniclers being in reality the present Zuñi; this town had, however, been but recently founded at the time of the Conquest. Five of the seven "Cities" were thus definitely located on archaeological evidence; a sixth, Aquinsa, probably existed, but could not be found; Pinnawa was proved by its pottery to be prehistoric. This last site was a very useful one, for it contained a considerable depth of rubbish, the upper levels of which corresponded in pottery type to the lower or prehistoric levels of historic Mattsakya.

Unfortunately no heaps in other ruins could be found to carry the direct sequence of sites further back than the lower levels of Pinnawa by stratigraphic evidence. The general trend of the pottery growth was, nevertheless, established and so the task of arranging the many other sites in chronological sequence was not an altogether hopeless one, for the author had determined by studying the percentages of wares in the strata of his test sections at Zuñi, Mattsakya, and Pinnawa that corrugated ware decreased in relative abundance from below upwards. He therefore believed that if the decline of corrugated ware was an index of the passage of time in the stratified late sites, that it might also be a valuable index for the ranking chronologically of the unstratified sites. He accordingly arranged his sites on the basis of their percentage of corrugated ware. This brought out the fact that there are two groups, in each of which corrugated rises from practically zero to fifty per cent. or over. Any two samples from the two groups with identical percentages of corrugated ware have, however, radically different wares associated with them. In one group the low percentages of corrugated are associated with pottery obviously modern; in the other the low percentages are found with black-on-white ware ("Slab-house" type) which stratified finds in other regions have proved to be a very early style. The second group is, therefore, obviously the earlier one, corrugated ware rises from practically zero to above fifty per cent. In the second group corrugated begins at fifty per cent. and decreases to zero in the latest strata of Zuñi; in other words, the two groups are merely

the first and second halves of a single growth and decline curve. The author then seriates all his sites on the basis of their corrugated content and then proves the validity of his arrangement by applying the test of concurrent variations in the accompanying wares. Thus the ruins are shown to be grouped in their true chronological order, and Mr. Spier is enabled to work out and present the changes which took place in the other wares accompanying the corrugated. These changes parallel in general those which Mr. Nelson and the reviewer have determined for the pottery of the Rio Grande. The sequence from early to late is: painted ware, glaze ware, combination glazed and painted, and finally painted ware of a modern type.

Three main periods are recognizable: the early, or black-on-white; the middle, represented by such sites as Hallonawa and Hecota'utlla; and the late, consisting of Pinnawa and the historic ruins Mattsakya, Hawwiku, etc. Mr. Spier finds, however, a hiatus in the sequence occurring between the lowest levels of Pinnawa and the wares of the Hallonawa-Hecota'utlla series. This hiatus is marked not only by a break in the continuity of the plotted curve for corrugated ware, but also by such an abrupt change in the accompanying wares as to make it seem likely that the sites containing the transitional styles, if such actually existed, must still remain undiscovered. As no such sites were to be found in the Zuñi valley, and as a geographic grouping of the known ruins pointed to several shifts in the center of population within the area, the author concluded that the missing villages must lie without the explored region, probably further west.

The second and third papers deal with the search for these missing sites and describe a number of ruins on the Little Colorado and in the White mountains in Arizona. This survey and the study of the resultant data showed that the late prehistoric and early historic wares of Zuñi had prototypes in the Little Colorado. The latter, however, do not fill the hiatus in the sequence of the Zuñi valley proper, because their wares do not fit on to the earlier Zuñi group (Hallonawa-Hecota'utlla). The validity of the two Zuñi valley series is not, however, impugned by the fact that they may not be parts of a single continuous series. The reviewer is inclined to think that the hiatus will eventually be closed by the finding of sites or strata which have not yet come to light.

The above is a brief summary of the leading points in Mr. Spier's admirable papers. Of the details of the pottery changes the reviewer is not competent to speak, his knowledge of the Zuñi-Little Colorado wares is not sufficient. The chief feature to be emphasized is the value

of the methods brought to bear on the problems of this area, methods which are applicable to any other Southwestern district. Of Mr. Spier's work one can say nothing but good. He has approached his subject with an open mind and has met serious checks in the field (such as the lack of stratification in the sites) with a ready resourcefulness. The same valuable qualities have been brought to bear on the tabulation and interpretation of the material in the preparation of the reports. The result is a preliminary chronological arrangement of the Zuñi ruins which is almost certainly correct. That so great results can be attained by so comparatively small an amount of fieldwork and with so little expenditure of money for excavation, makes the future outlook on Southwestern archaeology considerably less overwhelming than it was when extensive excavations were considered necessary for the clearing up of any problem. Mr. Spier's method allows the investigator to sketch in the outline of his work with a minimum of effort; he may then test it by excavations and close study of detail in the places which the preliminary work show to be crucial. Reconnaissance is given a more definite and permanent value than it has ever had before.

Because of the very ease and value of this method, it is likely to be widely used. It should therefore be rigidly tested in this type area in order to make absolutely sure that the results there gained by it are indeed as accurate as they seem to be. Fortunately such a test will probably be supplied by the excavations at Hawwikuuh now being carried on by Mr. Hodge for the Museum of the American Indian. Hawwikuuh is a historic site, yet was undoubtedly inhabited, whether continuously or not, for a long period in prehistoric times; its excavation, therefore, should provide a very accurate check on Mr. Spier's chronology in its general aspects; and, in detail, show whether the postulated hiatus existed or not.

As the author says, the reliability of his data, and hence of his whole method, depends on two things: first, on whether a surface collection of sherds represents a real specimen of the wares used at that ruin; and, second, whether it is possible to make a truly random collection from the surface.

To consider the first of these points. If a site was inhabited for so short a period of time that its wares did not change radically during its occupation, then its surface pottery will of course give a true representation of the wares used. It will be comparable to the contents of a stratigraphical cut and will, indeed, be even more valuable because the inevitable mixing present in the rubbish of a long occupied site will be

absent. When, however, a town was inhabited continuously for a long time, or reoccupied after abandonment, a surface collection is not, in the reviewer's opinion, reliable. It will contain, in most cases at least, a mixture of all the wares used at that site from beginning to end. The collection will not even show with any degree of accuracy the wares of the last period of occupation. It may be argued from this that every level of every rubbish heap was at one time surface, and that therefore stratified rubbish must be equally mixed and so of little chronological value. While to a slight extent this objection is a valid one and all rubbish is somewhat confused, it is nevertheless a fact that the present surface of a rubbish heap is very much more badly mixed than is any other single layer in the body of the heap. This has been repeatedly checked by actual counts and tests at Pecos. The reason for this is that rubbish at an inhabited site accumulates more or less rapidly and steadily and is thus covered in from the effects of wash. Furthermore, during occupation prairie dogs and badgers, indefatigable and potent shovellers from below upwards, were not present. During the long periods since the abandonment of sites, on the other hand, the rodents have been at work and, most important, rain and wind have furrowed and cut and rearranged, earth has washed away and sherds been exposed, other sherds have washed down from higher levels and been left lying; once exposed such sherds are seldom reburied.¹ For these reasons collections of pottery fragments from the surface of sites other than those inhabited for short periods only are, in the opinion of the reviewer, of more harm than good for statistical comparison with stratigraphical remains.

The above is by no means an arraignment of Mr. Spier's method, for it is safe to say that at least nine out of every ten Southwestern sites were only briefly inhabited. Furthermore, Mr. Spier possessed a knowledge of the wares that enabled him to distinguish "monotype" sites from those showing two or more chronologically distinct types. The novice, then, or the old hand entering a new area must to some extent orient himself among the wares before he can apply Mr. Spier's method with the certainty of getting valid results.

The second point upon which the reliability of the author's system of reconnaissance depends may be expressed by the following question: can a truly random collection be made from the surface? Mr. Spier has

¹ Tests at Pecos show that there are normally about four times as many sherds on the surface as there are on any equal plane surface within the rubbish. Stratigraphical study at Pecos also demonstrates that objects of all sorts are very much more frequently displaced upward than downward.

tested his own and Dr. Kroeber's surface samples against actually random lots from underground (*i.e.*, total sherd content of given cubic areas of rubbish) and answers in the affirmative. He does not say, however, how these random collections were made. A system which does away with the personal equation entirely has been used by the reviewer for this work, namely to mark off an area on the surface six, ten or any greater number of feet square according to the abundance of sherds, and collect all the fragments that are in it. So much for field practice.

Mr. Spier's presentation and statistical handling of his material are essentially sound. His ranking of the sites on the basis of their percentages of one of the wares (which stratigraphical work had shown to be chronologically significant) is a new and valuable contribution to method. The same may be said of his check on his results by the concurrent variations of the accompanying wares. His descriptions of pottery types are as clear as can be given in words and by black and white drawings. A collection of representative sherds, however, which could be sent to students to use in conjunction with the text would be of the greatest value; such collections should be prepared to accompany all works on pottery not fully illustrated in color.

Good method can only lead to good results; Mr. Spier's conclusions are thoroughly satisfactory. His work will stand as the basis for all future archaeological study of the Little Colorado drainage, just as Dr. Kroeber's "Zuñi Kin and Clan" in the same volume must underlie all future work in Pueblo ethnology. Both are fundamental.

A. V. KIDDER

ASIA

The Folk-Element in Hindu Culture. A Contribution to Socio-Religious Studies in Hindu Folk-Institutions. BENOY KUMAR SARKAR, assisted by HEMENDRA K. RAKSHIT. New York, Longmans, Green and Co., 1917. xx and 312 pp.

This book is intended as a contribution to Hindu sociology; its principal object is to show the share of the masses of people in the framing of Hindu culture, the influence of certain cults, especially that of Çiva, on the life of the people, on literature, art, ethics, education, social reforms, etc., and to emphasize the interrelation and interaction of social and religious institutions. While the book lacks background, interpretation, and analysis, for which free indulgence in modern political phraseology does not offer a substitute, and while the presentation of the subject is not even by any means lucid or harmonious, and no dis-

crimination is made in the treatment of essentials and non-essentials, it will render useful services as a repository of new data and facts, many of which have heretofore been unknown to Indology. The authors assure us that their material is derived from a first-hand exploration of oral tradition and folklore, as well as from mediaeval Bengali literature, especially from old manuscripts. It appears that there is at present an intense activity among Bengali scholars in the collection of folklore, and we justly wonder why this rich material cannot be made accessible to the western student in its original form. We can hardly be expected to remain content with a few extracts classified under certain pretentious, more or less scientific headings, but we are eager to study the actual sources and to draw our own conclusions.¹ We can therefore accept the present work merely as a prelude or an overture, and seek comfort in the hope of receiving more substantial contributions in the future. In almost all of the eighteen chapters a good beginning is made, but as soon as we become really interested and long for more, the door is suddenly closed, and we are left outside in the dark.

The bulk of the book is taken up with a description of the Gambhīrā festivals held everywhere in Bengal in honor of the god Īiva, but the text is unfortunately not enlivened by any illustrations. These would especially be required with reference to masks, pantomimes, and dances. A perusal of this chapter has shown me that several masked dance-performances of Tibet are identical with, and obviously derived from those of Bengal, and that most of the masks described by our authors are represented in an extensive collection of Tibetan masks made by me for the Field Museum. The Lamaism of Tibet is a syncretism of Buddhism and Īivaism, and many mystery and miracle plays or rather dances of the Lamas are of Īivaitic origin. The historical connection between Bengal and Tibet is given by the mission of Atīṇa, a Buddhist monk from Bengal, who wended his way to Tibet in the eleventh century and laid there the foundation to those practices.

¹ The authors, as admitted by themselves in the preface, refrain from citing chapter and verse "in the case of standard authorities, especially in instances where the historical facts are very well known" (to whom?). The fact is that not in a single case is an exact reference given, whether standard authorities or not. This is a vicious habit which mars the value of an otherwise creditable book. This procedure prevents the reader from checking up any given data and sets a valve on any attempt of his at further research; it will finally discourage him and considerably weaken his confidence in such a book. The author thus does a gross injustice and injury to himself. The rigid principle to give exact quotations has its own moral reward for the author, because he will always be constrained to look up a passage in the original text, to be accurate, and to control himself.

The authors hold that the festivities and entertainments of the people of India were virtually the same, irrespective of creeds and sects, and that the interrelation of these became so intimate that the difference between Hindu and Buddhist festivals was but very slight. This assimilation is chiefly due to the rapid development during the middle ages of the Tantra system which was also brought to Tibet. Although Buddhism has been extinct in Bengal for a long time, many survivals of it are still extant among the rustics; and Mr. Sarkar even admits that, though the Çivaitic influence is predominant in the Gambhīrā, yet institutions and observances of the Buddhist Tantric school form its backbone. The picture traced of the religious and social development of Bengal through its many phases down to the contact with Islam (designated as the "Indo-Islamic wedlock") is very interesting in general, but is too abrupt and without depth. It is easy enough to understand that a Bengali evinces little sympathy for Islam, but a world-historical figure like Mohammed cannot be simply dismissed as "the camel-driver of Mecca" (p. 216). There have been many camel-drivers in Mecca and elsewhere, but not all camel-drivers have developed into a Mohammed.

The fact that Bengali folk do not lack a sense of humor is illustrated by the play *Hanumān-makhā* ("Mask of Hanumān"). One of the votaries wears the mask of Hanumān, the monkey-god of the epic Rāmāyana, and attaches to himself a long tail made from unripe banana-leaves, dry banana-leaves being wrapped around the end of this tail. The tail is set fire to, and the player leaps over a piece of cloth held by two persons in front of him, returning in the same way to his former place. This suggests a fair representation of the story of how Hanumān leaped across the sea from the mainland to Ceylon.

Few, if any, will agree with the dogmatic thesis that "the caste-system has never been a disintegrating factor in Hindu communal existence, and is most probably a very recent institution" (p. x). How about Buddha's opposition to caste? The Saka and Kushana were not "Tartars or Mongols" (p. 167), but of Scytho-Iranian extraction.

The work is provided with a very copious index of fifty pages, which will render good service.

B. LAUFER

Etudes archéologiques et ethnologiques. Les Aïnu des Iles Kouriles. R. TORII. (Journal of the College of Science, Imperial University of Tokyo, Vol. XLII, Art. 1, Tokyo, 1919.) 338 pp. 38 plates. 118 figures in the text.

It is known that a considerable literature exists on the Aïnu of Yezo and Saghalin, while the Kuril Aïnu, owing to the inaccessibility of the

island chain occupied by them, have been almost wholly neglected. This gap in our knowledge is felicitously and successfully filled by the fine publication of Torii, who has rescued for science the knowledge of a small, but important, moribund group. This unfortunate tribe is now reduced to fifty-seven individuals, and its complete extinction may be a question of a few years. It is thus no wonder that their culture also is in a hopeless state of disintegration, and that their ancient customs can no longer be observed, but merely learned from the lips of old men or women. Thus tattooing is discontinued, but old men can still trace the designs formerly used by their women on hands, arms, and lips, and being identical with those of Saghalin and Yezo. The many neolithic stations discovered by Torii on various islands, and the numerous finds yielded by them, allow of the inference that in former times the population was much more compact; and the highly developed artistic sense displayed, for instance, in the decorations of whalebone combs, makes us think that a happy state of mind must have prevailed on these barren isles before they came in contact with the scourge of "civilization."

At present, the Kuril Ainu designate themselves simply Ainu ("men"), also Ruton-mon-guru ("west-living people"),¹ in distinction from the Kamchadal whom they call čupka-guru ("people of the east"). The Kamchadal are also styled by them Kurumuse, Oyataru, and Kamčidarū. During the period of their independence (that is, until the eighteenth century), the Kuril Ainu conferred upon themselves the name Kushi, which both Krasheninnikov and Steller learned from the Itälmen as the designation of the inhabitants of the Kuril Islands. L. v. Schrenck has already expressed the opinion that the name Kushi or Kusi is the basis of the word "Kuril" and the Gilyak designation of the Ainu,—Kūgi; but it is doubtful to me whether this word, as conjectured by Klaproth and Schrenck, is related to Ainu *kuru*, *kur* ("man, tribe"). Moreover, we have a Chinese name for the Ainu in the form K'u-ye, the earliest record of which occurs in the *Yüan shi*, the Annals of the Yüan or Mongol Dynasty (thirteenth and fourteenth centuries). Torii goes a step farther, and connects with this name also the earlier Sino-Japanese designation of the Ainu,—Hia-yi (literally, "shrimp barbarians"), which he holds should be read Kashi. This, however, is not convincing, as the ancient pronunciation of these syllables was Ga-yi or Gia-yi; it is not proved, either, as assumed by Torii, that the Yezo Ainu ever styled themselves Kushi. The Kuril Ainu appear to have had relations from time to time with the Koryak whom they call Koreku. The Aleut

¹ Radliński, in his *Slownik nazwesa Ainów*, records this word as Rutumkur.

have been known to them for a long time under the name Aleuts (thus according to Torii; Radliński gives the Ainu name in the form Arvat).

The needle-cases of the Kuril Ainu, consisting of a leather strap passing through a bone tube (p. xvii D), are identical with those of the Koryak, Chukchi, and Eskimo. Basketry is said to have been manufactured in imitation of that of the Kamchadal and Koryak. Clothing was made from fish and seal skins, also from skins of wild ducks and from birds'-feathers; one of these is reproduced in colors (pl. xii). The most remarkable objects of art were buttons of wood or whalebone, decorated with designs painted in red, yellow, and black, and fastened to their girdles; further, embroidered leather belts (pl. xiv) of an artistic quality and color sense of design which is really astounding.

Sledge and dog-driving, according to Torii, were originally unknown to the Ainu, and were derived by them from Kamchatka. This may be the case; but the conclusion that for this reason the Ainu did not come from the north, but from the south, seems to me to overshoot the mark and be far from forcible. On Yezo, naturally, there was no occasion for dog-driving. The snowshoes are of the netted type. Manufacture of pottery was carried on on an extensive scale, but was abandoned three generations ago. Lamps were carved from stone, and were similar to those of the Koryak, Chukchi, and Eskimo. In agreement with these tribes, they used the bow-drill in making fire. From ancient times they have lived in subterranean habitations during the winter, and like their relatives on Yezo and Saghalin, have had distinct summer and winter houses. The winter house, half underground and well-closed, was heated by numerous hot stones, steam being produced by pouring water over them. This practice of the steam-bath is equally found among the Koryak, Chukchi, and Eskimo; and, as it does not occur in Japan, Torii concludes that the Kurilians adopted it from these peoples.

The festival of the bear is unknown on the Kuriles. The author states that the ancient Ainu of Japan did not practise it, either, and concludes that the Saghalin and Yezo Ainu adopted the custom from the Gilyak. In regard to the *inao*, Torii holds that they represent, not a god, but an object sacred to the first chief. It is regrettable that the author has not read Sternberg's important study of the subject (also Pilsudski's work is evidently unknown to him). Brief abstracts of fifteen legends are given; they were obviously recorded through an interpreter.

The remains of the neolithic age which lasted till the seventeenth century are well described and illustrated. The shellheaps yield oyster

shells, bones of whales and other marine mammals, bird and reindeer bones, arrowheads and hatchets of obsidian and other material of volcanic origin, implements of bone and horn, harpoons, spoons, girdle-buckles, and shards of coarse pottery.

The most curious objects discovered by Torii on the Kuriles are wooden masks (pl. xv), which he justly compares with those figured by Jochelson from the Maritime Koryak. The case is striking, since the Yezo and Saghalin Ainu do not know masks at all. Torii illustrates also several clay masks of the neolithic period of Japan, which he attributes to the Ainu. If this is true, the problem naturally becomes still more complex. The question as to whence the primitive Ainu, the Maritime Koryak, the Alaskan Eskimo, and the Aleut obtained the use of masks, is answered by the author (somewhat in the fashion of Mohammedan writers), "Dieu seul pourrait le dire." The Kuril masks represent spirits called *fūjiru*, intent on harassing and devouring human beings, and appearing suddenly; when they drop their masks, they are white; they are usually clad with animal skins, and wear leather foot-gear. They have a chief with numerous servants; he is armed with a sword, and has a necklace of glass beads. These spirits live in huts similar to those of the Ainu, and are stationed in Kamchatka, chiefly on a high mountain.

Two chapters are devoted to a discussion of the Ainu legend relating to the Koropokguru and Kobito (dwarfs). The author states that this tradition is unknown to the Kuril Ainu; and, as ascertained by me, it is unknown to the Ainu of Saghalin: it is an exclusive Yezo tradition. Torii rejects completely Tsuboi's hypothesis of a rapprochement of the Koropokguru with the Eskimo, and, as was done by me eighteen years ago, denies the historicity of this tradition. Those who are eager to build history on folklore, which lacks the most essential requirement of historical records,—exact notions of time and space, chronology and geography, —are objects for commiseration anyhow.

The author rises against Bogoras' supposition of Japanese commercial relations with Kamchatka: the Japanese merely exchanged their goods with the Ainu of Yezo; these transmitted them to the Kuril Ainu at the market of Rassawa, whence they passed on to Kamchatka, and from there to the Koryak and Chukchi. For my part, I had already antagonized the same theory (*Chinese Clay Figures*, p. 270, note 4).

The linguistic portion of the work is the least satisfactory. A brief vocabulary of the Kuril dialect in comparison with that of Yezo (for which Batchelor's Dictionary is not consulted) is given in French spelling,

without any conception of phonetics. It can hardly be utilized for serious philological purposes. As to the numerals, the author must have either consulted an individual who became mixed up during the process of counting, or met with an accident in arranging his notes; for *inat* cannot mean 60, as he states, but is $4 \times 20 = 80$; *wambe aškeneot* is not 70, but $5 \times 20 - 10 = 90$; *aškeneot* (previously known as *askinot*) is not 80, but $5 \times 20 = 100$; *wambe ewanhot*, given by him as 90, in fact means 110 (literally, $6 \times 20 - 10$); and what he records as 100 (*aruwam howat*) is $7 \times 20 = 140$. These slips could have easily been avoided by referring to my article *Vigesimal and Decimal Systems in the Ainu Numerals*. The author, further, indulges in a bit of Tower-of-Babel philology by comparing thirteen Kuril-Ainu words with Assyrian; fortunately he himself does not take this attempt very seriously. But why, then, print it? This is not all, however. In his conclusions (p. 284), the author pleads that "the Ainu-Kushi are perhaps brothers of the ancient peoples in the valleys of the Tigris and Euphrates." The name Kushi reminds him of the "Kassites, Kosikass, and Kusshi of the cuneiform inscriptions." There follows a lengthy, romantic comparison of Kassites, Ainu, and Japanese. The Ainu call the Gilyak Sumeren-kur; the author might have correlated this name with that of the Sumerians as well. In vain did I write in 1917. "We have had enough theories and fancies about the Ainu; it is time to get at the facts." It will thus be noticed that in Torii's work we have to discriminate between new facts and new theories and speculations; the former present an essential addition to our knowledge of the Ainu, the latter must be viewed with reserve.

There is also a final chapter, entitled "Considérations sur les origines du Japon proprement dit," in which, on the basis of archaeological and historical evidence, the author endeavors to show that the population of Japan has largely grown out of Ainu and Tungusian stock. It would lead me too far to take up his arguments in detail and to present my own views concerning Japanese origins, but I am under the impression that Torii is not on the right track in this question; nor am I inclined to believe with him that the Japanese language is "a daughter or sister of Tungusian, as Shintō religion of Shamanism" (p. 197, note). Briefly stated, in my opinion, the Ainu are a northern people, the Japanese are a southern people; in the beginning, the Japanese were settled somewhere along the southeastern shores of continental Asia, and thence emigrated into their present insular homes from south to north; in the course of their advance they clashed with the Ainu who had occupied the northern

part of Japan by entering from the north, and who were gradually heading southward.

Whatever these raisonnements and speculations, or our divergence of opinion, may be, the author's tendency to theorize is redeemed by his solid fund of new data for which we have every reason to be grateful to him. Credit is also due to the University of Tokyo for supporting his researches and bringing them out in so excellent a form. The illustrative material is abundant, and the fine execution of the plates leaves nothing to be desired.

B. LAUFER

Malaka, le Malāyu et Malāyur. GABRIEL FERRAND. (*Extrait du Journal asiatique*, Paris, 1918.) 202 p.

The traditional opinion hitherto maintained (so much of our scientific baggage rests merely on tradition) was that the city of Malaka was founded in the last quarter of the fourteenth century. This never was satisfactory to me. The problem is one of importance, for Malaka forms one of the most glorious chapters in the annals of Malayan enterprise and colonization; for centuries it was the Alexandria of the Far East and a transit-mart uniting East and West;¹ and there are several culture-historical questions which pivot around the date of the foundation of Malaka. Monsieur Ferrand, Consul General of France (until a few years ago in New Orleans), stands in the foreground of Malayan scholars, and commands a unique knowledge of Malayan and other Oriental languages, coupled with a long and wide experience of Madagascar and almost all parts of the globe. While the main object of his present publication is to solve the mystery of Malaka, the treatment of the subject is so thorough and circumstantial that it grows into a fundamental contribution to early Malayan history. He gives a long and almost complete series of Chinese, Arabic, Portuguese, and Dutch texts relating to the ancient history of Malaka, and has provided them with an elaborate and illuminating commentary. His study belongs to the class of those aptly characterized by the French as "bien documenté" and "trés nourri." We are especially indebted to the author for laying before us in an unabridged form the lengthy accounts of the Portuguese chroniclers—d'Albuquerque, de Barros, Correa, de Couto, de Eredia, and

¹ Varthema, who visited Malaka about 1505, says, "Truly I believe that more ships arrive here than at any place in the world." About a century later, François Pyrard speaks of the city as "the key and staple of the trade of China, Japan, the Moluccas, and other islands in the neighborhood of Sunda," and characterizes it as "the richest and busiest town in all the Indies after Goa and Ormus."

Castanheda, whose works (at least in this country) are all difficult to obtain; and not only those interested in the history of the Malaysans, but also the students of Malayan folklore should be strongly advised to read these interesting documents. Duarte Barbosa is cited after the translation by Stanley made from a Spanish manuscript and not very accurately; the new translation by M. L. Dames on the basis of the Portuguese original, the first volume of which has just been issued by the Hakluyt Society, is preferable.

A cogent date for the foundation of Malaka does not immediately result from any document at our disposal. The Portuguese writers who lived in India are at variance with one another, their dates going as far apart as the eighth and fourteenth centuries. The date 1253 given in the Malayan chronicle *Sedjarah Malāyu* (written in 1612) seems to be the most reasonable, and this is also the one adopted by the Hollander Valentyn (cf. Blundell, *Notices of the History and Present Condition of Malakka*, in Logan's *Journal of the Indian Archipelago*, vol. IV, 1850, p. 750). In order to arrive at a more satisfactory solution of the problem, M. Ferrand studies at close range what is known of the Malayan settlements named "Malāyu," one of which was situated on Sumatra, and the other on Malaka. The earliest authentic mention of Malāyu, from which our word "Malay, Malayan" is derived, is due to the Chinese, and occurs in the History of the T'ang Dynasty under the year A.D. 644 or 645, when the country Mo-lo-yu (anciently Mwa-la-yu) sent an envoy to China with a tribute of local products; this was Malāyu on the east coast of Sumatra. Only as late as the end of the thirteenth century, under the Yüan or Mongol dynasty, we read again of Mo-lo-yu in the Chinese Annals, which in one case employ also the transcription Ma-li-yü'r. The final *r* cannot yet be reasonably explained; but it is not accidental, as we have Malaiur in Marco Polo and in several Arabic records. M. Ferrand demonstrates and decisively with great acumen that the Mo-lo-yu and Ma-li-yu'r of the Yüan Annals and the Malaiur, visited about 1293 and briefly described by Marco Polo as "a fine and noble city" are identical, and occupied the same site as the city of Malaka. The struggles of Malāyu with Siam are reported in the Yüan Annals in the same manner as in the Commentaries of Albuquerque, who speaks of the Malaiois of Malaka. Thus M. Ferrand concludes that Malayur existed during the thirteenth century as a flourishing centre of trade, where, as Marco Polo says, all kinds of spicery and all other necessities of life were to be found, and that it was the predecessor of the place subsequently styled Malaka. He further holds that Correa's

date which assigns the foundation of the city to the eighth century is not improbable. He accepts the etymology deriving the name from Sanskrit *āmālaka* ("myrobalan," Malayan *malāka*, Javanese *malaka*)¹—many other toponymies in the Malayan domain are traceable to botanical terms,—refers to the early Indian colonization of the Peninsula, and is inclined to assume that the Indo-Malayan name was conferred upon the city by foreigners coming from India, who were the founders of this emporium for maritime commerce.

Finally, M. Ferrand believes he is justified in discovering the name *Malāyu* in a Chinese record of the fifth century, with reference to an event placed in the year A.D. 43. The celebrated General Ma Yüan (14 B.C.—A.D. 49), who quelled a serious uprising in Tonking against Chinese rule, is said to have erected in A.D. 43 two copper columns at the southern frontier of Sianglin (in Indo-China, near Cape Varella) to mark the boundary of Chinese territory against the barbarians. M. Ferrand seizes upon a passage of the *Lin-yi ki*, which says, "The natives who lived there, styled those left behind by him Ma-liu [that is, 'me; transported or left behind by Ma,' the family-name of Ma Yüan]; they called themselves from generation to generation descendants of the Han [that is, Chinese]." The common explanation of *Malāyu* is "fugitive, exile"; and the author sees a strong analogy to this tradition in the expatriated soldiers of Ma Yüan's garrison. Thus he arrives at regarding Ma-liu as a Chinese transcription of the name "Malayu"; and if this interpretation is correct, he concludes, an important Malayan group was settled in the environment of Cape Varella toward the beginning of our era. It must be admitted that this rapprochement is ingenious, and I wish I were in a position to confirm it. One of the objections to be raised to this conjecture, the author has recognized himself by observing that the name "*Malāyu*," when it first became known to the Chinese toward the middle of the seventh century, and also at later times, is rendered by the three syllables *Mo-lo-yu*, and never by two syllables; but this objection, in his opinion, is not decisive, as the foreign element *-lāyu* could be well represented in Chinese by the element *liu*. The present Chinese diphthongs terminating in a labial vowel are evolved from *-v* (and *-v*, as a rule, has sprung from *-b*): thus *pao* is issued from **pav*, and *liu* from **liv*. **Ma-liv*, in my estimation, could not have been employed for the transcription of *Malāyu*. Chinese tradition, moreover, does not speak of a foreign tribe left by Ma Yüan for

¹ The correct spelling therefore is *Malaka*; there is no justification for writing *Malacca* or *Malakka*.

the defence of the empire's southern frontier; what the general left there, naturally was a garrison of Chinese soldiers, and this is the usual conception of the event (cf. Hirth, *T'oung Pao*, vol. I: 1890, p. 138; and *Bronzetrommeln*, p. 52). These Chinese soldiers and their descendants intermarried with native women, and thus developed into a colony of "natives." This is my opinion in the case, but it does not imply that M. Ferrand is wrong, and that I am right. Dogmatism of any sort is detestable, and every problem is debatable from many points of view. I merely wish to make these observations, which seem to me somewhat essential in bearing upon the problem in question, and am perfectly willing to listen with respect to the arguments of others.¹

There are several interesting appendices, especially one in which the Ghur of the Arabs is identified with Formosa. The entire work is replete with substantial information and novel suggestions which open a wide perspective for future research. I only wish M. Ferrand might also have given us his opinion in regard to the alleged Ptolemaic allusions to Malayan names,—thus Perimula taken for the site of the city of Malaka by L. Contzen (*Die Portugiesen auf Malaka*, p. 4, Bonn, 1906) and the Maleou Kolon, discussed by Yule (*Hobson-Jobson*, p. 545) and Gerini.

B. LAUFER

OCEANIA

Neu-Caledonien und die Loyalty-Inseln; Reise-Erinnerungen eines Naturforschers. FRITZ SARASIN. Basel: Georg und Co., 1917. 284 pp. 184 figs., 8 pls., 1 map.

This is the preliminary account of a fifteen months' trip (1911-1912) to one of the least known regions of Oceania. The typography and illus-

¹ It should be pointed out also that the authenticity of the above Chinese account is not altogether beyond doubt. As far as I am aware, it is not recorded in the official Han Annals, either in the chapter dealing with the reign of the Emperor Kuang-wu or in the biography of Ma Yüan (*Hou Han shu*, chap. 54). G. E. Gerini (*Researches on Ptolemy's Geography of Eastern Asia*, p. 353) holds that the story does not deserve much credit. An entirely new conception of the matter has recently been propounded by H. Maspero (*Bull. de l'Ecole française*, vol. XVIII, no. 3, pp. 24-26), which cannot be reproduced here *in extenso*. Maspero speaks also of a Chinese colony, but regards the Ma-Yüan tradition as a legend forged in explanation of the name Ma-liu, which he interprets as the transcription of a foreign word, applied by the natives to that Chinese settlement and not understood by the Chinese, who subsequently connected this word with the name of Ma Yüan. This point of view is possible, but would certainly exclude any relation of Ma-liu to Malāyu. The presence of the Malayan Cham in Indo-China, of course, permits us to look for Malayan influences in this region; and the word "Malāyu" is familiar to the Cham (Aymonier and Cabaron, *Dictionnaire cham-français*, pp. 383, 388).

trations are on a par with the publications associated with the name of Sarasin, and the text is largely though not wholly devoted to matters of considerable anthropological interest.

As was to be expected, Dr. Sarasin devoted a great deal of attention to physical anthropology (pp. 41 seq., 156, 249 seq.). He found the stature of the New Caledonians to average 166.4 cm. for the men and 156.6 for the women, with a rather marked difference between the northern and the southern groups, the mean of the former descending to 164 cm. while in the south it rises to 170.5 cm. In physique the natives are frequently very powerful, the chest and musculature of their long arms and legs being well developed. The North Caledonians are of darker skin color than the rest of the aborigines, the chest being brown or reddish-brown, while the abdominal and dorsal regions are of somewhat darker shade. The hair of the adult population is defined as spiral, coarse and dark brown, but that of children is finer, more or less curly and of lighter brown tint. The beard is well developed, as is the black body hair, which however does not appear before puberty, when it begins to supersede the fine yellowish nap that covers the forehead, cheeks, neck, back and arms in childhood. In the north the skull is decidedly dolichocephalic (72.1 for males, 73.5 for females) and is characterized by a decidedly projecting glabella, prominent browridges and an excessive development of jaws and teeth. The nose is very wide, thick and fleshy, though not equaling in this respect the "idealized" representations of native art. The mouth is often extremely wide, but the thick lips do not protrude in Negro fashion. In the south dolichocephaly and the spiral hair-form are less pronounced, while the number of individuals with relatively light pigmentation is somewhat greater.

The natives of Mare, Loyalty Islands, resemble the North Caledonians in their decided long-headedness and dark skin color, but are somewhat taller (167.8 cm.) and display Negroid features less conspicuously. More especially, there is a great deal of variability in the form of the hair of the head, which is often not frizzy but curly or even wavy. Here, too, a yellowish down was noted on the bodies of children. Dr. Sarasin is not inclined to explain the deviations of the Loyalty Islanders from the Caledonian norm by Polynesian mixture but rather as the result of free variability and isolation (p. 251 f.). Indeed, in the island of Ouvéa, where Tongan immigrants are known to have settled, their unions with aboriginal women have failed to change the physical type, which is of markedly Caledonian character (p. 278).

Though the stone technique has become quite obsolete, Dr. Sarasin

succeeded in making some important archaeological finds that shed light on its character. Thus, in various Caledonian sites he discovered a variety of quartz knives, scrapers, drills and points (p. 81 seq.), while the exploration of a kitchen-midden brought to light fist-hatchets of Acheulean shape, discoidal stones with unilateral working of the edge, as well as distinctly neolithic relics including a polished ax and pottery sherds (p. 119).

Ethnographically Dr. Sarasin's results are most important as to material culture since other phases of native life have suffered greatly from the impact of Caucasian civilization. Nevertheless even as regards sociology and religious usage we are able to glean some worth-while data. For example, it is interesting to learn that in Lifou (Loyalty group) boys from their fifth year until marriage occupy the youths' house (p. 266). Remnants of totemism were noted in New Caledonia, where the several "families" bear bird or plant names and observe corresponding restrictions (p. 74). The Oceanian taboo notion exists in the simpler form of a property protection (p. 49). Hamlets ruled by headmen are the political units. A number of these form the tribe, which is governed by a chief and a council of elders, also anciently by a war chief. Formerly the chiefs enjoyed almost divine veneration and exercised power over life and death; succession was in the male line (p. 36). It must not be supposed that these tribes represent a large population; the smallest embrace several hundred individuals, none as many as two thousand. The linguistic differentiation is also noteworthy, there being sixteen related but for the most part mutually unintelligible languages in New Caledonia.

Much information was obtained on burial customs. Some corpses were found in the clefts of rocks, wrapped in barkcloth or mats but without a covering of earth; in New Caledonia the flexed position occurs (p. 65 seq.). In another spot of the island the author found a sort of shrine of eight skulls in a row with offerings of yams nearby; the skulls had been separated from the skeletons after decomposition (p. 165). A similar shrine was seen in Ouvéa but not in any other part of the Loyalty islands; in Mare, however, another curiosity occurs,—burials in deep grottoes in the midst of stalactites (pp. 275, 236 seq.).

Festivals and dances are still frequently held but their significance can rarely be determined at the present day. Wooden masks are still fairly common but complete mummers' costumes, including a feather cloak, are rare. Dr. Sarasin pictures a masquerader wearing the well-known proboscis type of mask (p. 100). Contrary to the current notion that the masks are war regalia, it seems that they are representations of a

marine deity, who is supposed to appear in this guise when annoyed by loud conversation. Magical rites are largely connected with horticultural activities. Rain-making is an art transmitted from father to son, and there are sacred stones treasured to promote the growth of yams and taro (p. 157 seq.).

The New Caledonians are skilled horticulturists (p. 54 seq.). Like the natives of the New Hebrides, they use the system of terrace irrigation for taro. Yams, the other staple, are raised by dry gardening. Unfortunately Dr. Sarasin does not enlighten us as to the sexual division of labor. Codrington's generic statement for Melanesia (*The Melanesians, Studies in Their Anthropology and Folklore*, p. 304), that the respective shares of men and women are "settled by local custom," is manifestly inadequate. There is certainly considerable variability among Oceanians in this regard, but only detailed information for every group can help us determine whether the allotment of work follows local caprice or some definite principle supplementary to Eduard Hahn's in the main but not universally valid generalization. On one point Hahn's theory certainly requires some amendment, *viz.*, in the matter of nomenclature. Not all the primitive forms of tillage can be accurately grouped under the heading of "hoe culture." For example, the New Caledonians use merely a digging-stick (p. 56), and the same was true of the Hopi Indians. Perhaps the comprehensive term "horticulture" might be used generically as complementary to "plough culture."

Other points can be merely alluded to in passing. The houses are generally round structures with high thatched conical roofs; the decorative carvings are amply illustrated. Pottery and barkcloth have unfortunately disappeared but bark beaters (figs. 31 and 157) were still collected in both New Caledonia and Mare. Spears were hurled with the aid of a sling (p. 65) instead of a spear-thrower. Shields and protective armor were never used (p. 64). A curious flute is pictured as the only form of musical instrument (p. 40 f.), for even the drum was lacking in this part of Melanesia. A very crude form of wooden headrest is still employed by the older generation (p. 78).

The culture of the Loyalty islands is essentially similar to that of New Caledonia but with some important modifications. Thus, the absence of any suitable stone called forth a great variety of wooden knives, pointed coral branches served as drills, and other implements were of shell (p. 243 seq.). The artistic sense of these people also seems markedly inferior to that of the New Caledonians, though as to general ability the author has formed a favorable opinion of them (p. 238).

These brief notes will, it is hoped, suffice to rouse interest in Dr. Sarasin's book, and specialists will welcome even more heartily his forthcoming monograph on *Nova Caledonia*.

ROBERT H. LOWIE

Contributions to the Ethnography of Micronesia. AKIRA MATSUMURA.

(Journal of the College of Science, Imperial University of Tokyo, vol. XL, art. 7, 1918). 174 pp., 36 pls., 72 text figs.

The author of this paper was one of a party of Japanese scientists dispatched by the Imperial University of Tokyo in 1915 to the Micronesian islands which Japan had recently taken possession of. The party sailed in a government vessel, and made short visits to a few of the most important islands, *i. e.*, Yap, Truk, Palau, Kusaie, Ponapé, Jaluit, and Saipan. The whole voyage occupied only 64 days, including a trip to Fiji. The author, however, had the aid of two assistants, and obtained what information he could from the Japanese officials in the islands.

The discussion is limited almost entirely to the material culture of the islanders. These he divides into two main groups, an eastern and a western, and takes up under each division the main elements of their culture, such as clothing and ornament, food, household utensils, dwellings, weapons, etc. Comparisons are made between the different islands visited, and the older writers are often drawn on to fill out descriptions when the objects formerly used have disappeared. The paper gives a fair idea of the present condition of the natives, and interesting comparisons between some of the principal islands. Though the quotations from earlier writers are frequent, the reader is often referred to them for detailed descriptions, not only of the things which have disappeared but even of many objects still in use, such as houses and boats.

The work is useful as a general summary of the material culture and for its comparative treatment of different islands. The author also makes numerous comparisons with Polynesia, Melanesia and the Malay Archipelago, and believes that Micronesia has many things in common with these regions. On both physical and ethnographical grounds he regards the natives of Micronesia as "an admixture of various neighboring tribes" and "as constituting a distinct race, the Micronesian, rather than a group belonging to another race."

The numerous text figures illustrate the objects described. There is one colored plate of a carved beam from a chief's house at Palau. Except one plate of various objects, all the others are from photographs of individual natives, groups, houses, and village scenes. Among others

there are some striking pictures of the large circular stone money of Yap. The photographs are clear and well reproduced. There is also a general map of Micronesia.

ALBERT B. LEWIS

MISCELLANEOUS

The German Element in Brazil. B. F. SCHAPPELLE. (Americana-Germanica Series, University of Pennsylvania, vol. XXVI, pp. 68.)

In view of the awakening interest in Spanish, Negro and French influences among the natives of the new world, the present publication of a study of Brazilian German seems of sufficient importance to deserve mention before anthropological readers. Whatever one's standpoint may be, Dr. Schappelle has made an interesting and instructive contribution to our knowledge of European colonization in South America. The paper undertakes to sum up the present state of knowledge, through existing literature and research in the field, concerning the German colonists of Brazil and their dialect. Historical and political facts are treated at equal length. The first German colony was founded in Bahia in 1818, in Minas Geraes in 1851, in Espirito Santo in 1827, in Paraná in 1829, in Santa Catharina in 1828, in Rio Grande do Sul in 1824. In the latter state the largest German population is found. The reason is attributed to the more favorable climatic conditions.

Making a liberal allowance for underestimates, one may regard the number 500,000 as representing the total number of citizens of German descent in Brazil today (1915)

out of a total Brazilian population of 23,000,000. Dr. Schappelle comments on the German peril "perigo alemão," expressing his idea of the same by the term "bugaboo." The German immigrants occupy fourth place in point of numbers for the period 1820 to 1915 (p. 22-23). Again he refers to the same matter by saying (p. 33)

The people regard themselves first as Brazilians, while according to their idea the retention and cultivation of their "Deutschthum" makes them better and more valuable Brazilian citizens, they carefully differentiate between "Deutschthum" and (to use their own expression) "Deutschländerthum."

To the anthropologist, however, the material given in the glossary (pp. 45-57) is more substantially satisfactory. Lists of classified terms are given. The discussion shows the mixture of Portuguese and Indian with the original language that one would anticipate by inference in the case of a people who settled in widely separated colonial nuclei. It is not surprising, therefore, to find that the people here have developed a new

dialect which we may call Brazilian German (p. 24). A list of personal and family names and culture objects exhibits a similar borrowing. Texts from documents, some poetry and a tale in the dialect further serve to illustrate the material.

Dr. Schappel's paper is, according to his own assertion, only the introduction to a mass of material which he has brought together. It seems a good start. We may advance the hope that in his next contribution he will devote some space to German and Tupi-Guarani interactions.

F. G. SPECK

SOME NEW PUBLICATIONS

Babcock, Wm. H. *Legends of the New World*. Boston: Badger, The Gorham Press, 1919. 155 pp.

Hough, Walter. *Exploration of a Pit House Village at Luna, New Mexico*. (Proceedings of the U. S. National Museum, vol. 55, pp. 409-431, pls. 28-38.) Washington, 1919.

Kidder, A. V. and Guernsey, S. J. *Archeological Explorations in Northeastern Arizona*. (Bureau of American Ethnology, Bulletin 65, 228 pp., 97 pls., 102 figs.) Washington, 1919.

King, F. H. *Farmers of Forty Centuries, or Permanent Agriculture in China, Korea and Japan*. Madison, Wis.: Mrs. F. H. King, 1919. 441 pp., 248 ills.

Lowie, R. H. *Theoretical Ethnology*. (Psychological Bulletin, Dec., 1918, vol. xv, no. 12, pp. 432-435.)

——. *Biometrics* (The International Journal of Orthodontia and Oral Surgery, vol. v, May, 1919, pp. 219-227.)

Moss, C. R. and Kroeber, A. L. *Nabaloi Songs*. (University of California Publications in American Archaeology and Ethnology, vol. 15, no. 2, pp. 187-206.) Berkeley, 1919.

Nelson, N. C. *The Archaeology of the Southwest: A Preliminary Report*. (Reprinted from the Proceedings of the National Academy of Sciences, vol. 5, pp. 114-120, April, 1919.)

Radin, Paul. *The Genetic Relationship of the North American Indian Languages*. (University of California Publications in American Archaeology and Ethnology, vol. 14, no. 5, pp. 489-502.) Berkeley, 1919.

Skinner, Alanson. *Exploration of Aboriginal Sites at Throgs Neck and Clasons Point, New York City*. (Contributions from the Museum of the American Indian, Heye Foundation, vol. v, no. 4.) New York, 1919. Pp. 47-126, 14 pls., 1 map, 14 figs.

Spier, Leslie. *Ruins in the White Mountains, Arizona*. (Anthropological Papers, American Museum of Natural History, vol. xviii, pt. v, pp. 363-386, 3 figs., 3 tables.) New York, 1919.

DISCUSSION AND CORRESPONDENCE

CORRIGENDA AND ADDENDA TO W. D. WALLIS' "INDO-GERMANIC RELATIONSHIP TERMS AS HISTORICAL EVIDENCE"

DR. WALLIS is deserving of the thanks of all anthropologists and Americanists who have at the same time a certain familiarity with Indo-Germanic studies for calling attention¹ to the usefulness for wider studies in kinship terminology of the Indo-Germanic kinship data. It is true, as he remarks, that these data, readily accessible in the works of Delbrück, Schrader, Hirt, Feist, and others, have not yet been utilized as much as they deserve.² Unfortunately Dr. Wallis has, perhaps through no fault of his own, allowed a regrettably large number of inaccuracies, some relatively trivial, others not so trivial, to slip into his paper. In this note I do not propose to give an independent discussion of Indo-Germanic kinship terms or to treat of the relation of these terms to sociological factors. I shall confine myself to correcting, so far as I am able, these inaccuracies of Dr. Wallis's, in order that his facts may be fruitfully handled by those interested in the subject. A few supplementary data here and there will probably be welcome. I shall use the opportunity to correct a large number of misprints, some of which are highly misleading.

P. 420, ll. 32, 33: For "*propatrius*" and "*abpatrius*" read "*propatruus*" and "*abpatruus*" respectively. These terms are directly derived from *patruus* "paternal uncle." For "*abvunculus*" read "*abavunculus*."

P. 420, ll. 32, 33 and p. 421, ll. 3, 4: Synonymous with *propatruus* "great-grandfather's brother" and *proavunculus* "greatgrandmother's brother" are *patruus mājor*, "greater paternal uncle," and *avunculus mājor*, "greater maternal uncle," respectively. Synonymous with *abpatruus*, "great-great-grandfather's brother," and *abavunculus*, "great-great-grandmother's brother," are *patruus māximus* "greatest paternal uncle" and *avunculus māximus* "greatest maternal uncle" respectively. Similarly, synonymous with *proamila*, *promātertera*, *abamila*, and *abmā-*

¹ *American Anthropologist*, N. S., vol. 20, 1918, pp. 419-431.

² A few Indo-Germanic parallels are quoted by T. Michelson, Remarks on Terms of Relationship, *Journal of the Washington Academy of Sciences*, vol. VII, 1917, pp. 181-184. He also calls attention to Delbrück's work.

tertera are *amila mājor*, "greater paternal aunt," *mātertera mājor*, "greater maternal aunt," *amila mājima*, "greatest paternal aunt," and *mātertera mājima*, "greatest maternal aunt." These terms logically continue *patruus māgnus*, "great paternal uncle," *avunculus māgnus*, "great maternal uncle," *amila māgna*, "great paternal aunt," and *mātertera māgna*, "great maternal aunt." Our own *great-uncle* and *great-aunt* are directly modeled on *avunculus māgnus* and *amila māgna* respectively.

P. 421, l. 6: The descriptive Latin terms for "niece" should have been given as well as those for "nephew," i. e., *frātris filia* and *sorōris filia*. *Nepōs* and *Neptis* generally mean "grandson" and "granddaughter," as Wallis notes (p. 420), but their later Latin use for "nephew" and "niece" should have been entered here not only because this usage eventually became predominant (cf. French *neveu* and *nièce*) but also because Indo-Germanic **nepōt-s* and **nepti-s* throughout show a strong tendency to pass from "grandchild, descendant" to "nephew" and "niece." Thus, in Germanic, Anglo-Saxon *nefa* means both "grandchild" and "nephew"; Old High German *nēvo* and Middle High German *nēve* mean primarily "sister's son," less often "brother's son"; while Old Norse *nípt*, Old High German *nift*, and Middle High German *niftel* all regularly denote "sister's daughter" or, more inclusively, "niece." Further, Old Church Slavic *netijǎ* and *nestera* denote "nephew" and "niece" respectively; Irish *niæ* (gen. *niath*) and *necht* denote "sister's son" and "niece"; while Albanian *mbese* (from **nepōtiā*) refers to both "granddaughter" and "niece." Under these circumstances it seems far more likely that the Indo-Germanic terms were inclusively used for "grandchild" and "nephew, niece" (or perhaps "sister's child"), however this classification be explained, than that several independent transfers from "grandchild" to "sibling's child" took place. The supposedly late Latin use of *nepōs* and *neptis* for "nephew" and "niece" is quite likely to hide an antique folk usage. There is much that is ancient in folk Latin and Romance that, for some reason or other, never or only sporadically found its way into standardized literary Latin.

P. 421, l. 7: Wallis' terms for "cousins" (*frātrēs patruēlēs*, *frātrēs consobrīnī*, and *frātrēs amitīnī*) apply only to male cousins. The corresponding terms for female cousins (*sorōrēs patruēlēs*, *sorōrēs consobrīnae*, and *sorōrēs amitīnae*) should have been noted, also the fact that the descriptive elements of these terms were also used alone (*patruēlēs*; *consobrīnī*, *consobrīnae*; *amitīnī*, *amitīnae*). From *consobrīnus*, *consobrīna*, originally "cousin through father's brother or mother's sister," later extended to cover all cousins, are derived French *cousin*, *cousine*

and our own *cousin*. Parallel to *patruēlis*, and apparently synonymous with *amilinus*, was also *mātruēlis* "mother's brother's son."

P. 421, l. 9: There is no such term as "consororini." *Consobrīnī* goes back to an older **consosr-īnī* < **swesr-* (Indo-Germanic *swe-* regularly develops to Latin *so-*; *-sr-* to *-br-*); *soror* "sister" is developed from **swesōr*. Hence *con-sobr-īnus* literally means "having sisters in common (as mothers)."

P. 421, l. 12: Wallis states that "the children of cousins german, that is, those whose fathers are brothers or whose mothers are sisters, call each other *sobrinius* [misprint for *sobrinus*] or *sobrīna*." This is somewhat ambiguous, but it seems to refer to children of *patruēlēs* or *consobrīnī*. The terms *sobrīnus*, *sobrīna*, however, indicate, according to Riddle, "a cousin-german by the mother's side," in other words they are synonymous with *consobrīnus*, *consobrīna*.

P. 421, l. 15: I can make nothing of *proprior sobrino*, defined by Wallis as "cousin german of my father or of my mother." Is this *prior sobrīnus* "an earlier cousin german" or *proprior sobrīnō* "nearer to the *sobrīnus*" (hence possibly "related to the *sobrīnus*")?

P. 421, l. 19: *Janitrices* should have been translated as a plural, "wives of brothers." Like its Indo-Germanic cognates (Sanskrit *yātaras*, Homeric Greek *ἐνατέρες*), it is used chiefly in the plural.

P. 421, l. 20: "*Enater*, husband of deceased sister," is an amazing entry. I have looked high and low for it and can find no trace of it. It would be decidedly interesting to Americanists to establish the presence in Indo-Germanic of a special term for a kin by affinity after the decease of the connecting link. Perhaps the following entry in Liddell and Scott's "Greek-English Lexicon" helps to clear up the mystery: "*ἐνατέρες*, brothers' wives . . . The corresponding masc. [*i. e.*, "sisters' husbands"] is *ἀέλιοι*; but in an Epitaph. ap. Orell. Inscr. Lat. 2, p. 421, *ἡνατέρ, ὁ*, is the husband of the deceased's sister." It may be that Wallis has misunderstood this very entry. The Greek *ἡνατέρ* is not, as he seems to have assumed, a Greek orthography for a supposed Latin "*enater*," but is simply an inscriptional form of the Greek *ἐνατήρ*, *ἐνατήρ*. The Latin *Inscriptiones (orelli)* are not accessible to me, hence I cannot explain why a Greek term was introduced into a Latin inscriptional text. Very likely the inscription occurs in what was then still a Greek-speaking part of southern Italy (Magna Graecia) and the man responsible for setting it up, having no Latin term at hand for *ἐνατήρ*, apparently confused with *ἀέλιος*, introduced the Greek term that was familiar to him. Evidently this *ἡνατέρ* meant to him "husband of wife's

sister," not "husband of a deceased sister." The "deceased" has no point other than that Liddell and Scott, quoting from an epitaph, so refer to the dead wife. The Latin "*enater*, husband of deceased sister" would thus seem to be a phantom twice over.

P. 421, l. 21: Wallis states that he "has not been able to discover any terms for such relationships (brothers-in-law and sisters-in-law) on the side of the wife." In the main it is true that, in Indo-Germanic, terms of this sort on the side of the husband are better developed than corresponding terms through the wife. Latin *lëvir* "husband's brother," *glôs* "husband's sister," and *janitricēs* "husband's brother's wife and reciprocal" have Indo-Germanic cognates, but "wife's brother" and "wife's sister" have, apparently, no primary Latin or Indo-Germanic designations. Latin *frātria* "brother's wife" is a secondary Latin development from *frāter* and means no more than "she who belongs to the brother." Wallis might have noted, however, that *lëvir* is also used in Latin, though probably only secondarily, for "wife's brother." "Sister's husband" is either descriptively rendered as *sorōris maritus* or, doubtfully, as *frāter* "brother." I can find nothing for "wife's sister."

Two very important Latin terms of affinity are omitted, no doubt inadvertently. These are *gener* "son-in-law" (whence French *gendre*) and *socrus* "mother-in-law." Both of these have great antiquity, as they have Indo-Germanic cognates.

P. 422, l. 1: Wallis speaks of Greek kinship terms as being "the parents of the Latin terms, which have, in most instances, been derived from the Greek." This is a surprising statement from one that is well enough informed to speak of "Indo-Germanic" at all. As a matter of fact, there is not one single Latin kinship term that is derived from the Greek. The undoubted resemblances between the Latin and the Greek terms are, of course, due to independent development from a common Indo-Germanic source.

P. 422, l. 4: *θεῖος* is not "mother's brother" but "uncle," whether paternal or maternal. The maternal correlate of *πάτρις* "father's brother" is not *θεῖος*, but *μήτρις* "mother's brother." This is recognized by Wallis himself further on. As feminine counterpart of *θεῖος* should have been given *θεία* "aunt" (paternal or maternal).

P. 422, l. 5: Wallis speaks of "*πατροκασίγνητος* (correct to *πατροκασίγνητος*), the son of father's brother." I cannot find this meaning given by Liddell and Scott. *πατροκασίγνητος*, literally "father-brother," primarily denotes "paternal uncle." Inasmuch, however, as *κασίγνητος* and *κασιγήτη* are used in Homeric Greek not only for "brother" and

"sister" but also for "sibling's child; nephew, niece," it is possible that *πατροκασίγνητος* might have been correlatively used also for "male cousin through one's father, father's sibling's son." In any event it is hard to believe that it was confined to "father's brother's son," as it is linguistically unavoidable to have it refer, in its secondary meaning, to *πατροκασγήτη* "father's sister" no less than to *πατροκασίγνητος* "father's brother."

P. 422, l. 8: *δελφός* is not "womb," which is *δελφύς*. Wallis has incorrectly abstracted a *δελφός* from derivatives in *-δελφός*. In discussing the terms *ἀδελφός* "brother" and *ἀδελφή* "s'ster," Wallis speaks of "the maternal relationship being connoted in the stem . . . , meaning 'womb.'" His point seems to be that in these terms we have evidence of a maternal method of reckoning descent. I believe this inference to be quite unwarranted. Full brothers are *ἀδελφός* "(begotten) of the same womb" whether the method of reckoning descent is maternal or paternal. The term *ἀδελφός* only secondarily means "brother"; as shown by its Sanskrit cognate *sagárbha-* (Indo-Germanic **sṃ-g wélbho-s* "from the same womb"), it is a purely descriptive term intended to emphasize the idea, where necessary, of physiological kin. It no more refers to a method of reckoning descent than such an English term as *co-filial* or the Greek *ὁμοπάτριος* "born of the same father" and *ὁμομήτριος* "born of the same mother" (see p. 423 of Wallis' article).

P. 422, l. 10: Wallis states that "the terms for nephew and niece [*ἀδελφιδέος* and *ἀδελφιδῆ*] preserve the common connotation of relationship through the same female ancestor." These terms are merely derivatives of *ἀδελφός*, *-ή*, "brother, sister" and do not in the least involve a reference to the primary etymological sense of *ἀδελφός* "from the same womb." That primary sense did not, as we have seen, imply matrilineal reckoning, but even if it did, it could not follow that the patronymic¹ derivatives in *-ιδέος*, *-ιδῆ* implied or confirmed it. A *Netherlander* is not one who lives in a low or "nether" land but one who lives in *The Netherlands*, in which, of course, there is a reference to the etymological sense of *nether*.

P. 422, l. 12: Wallis states that "in the word *πασίγνητος* [correct to *κασίγνητος*], meaning a brother by the same mother (from *ἀγάστωρ*, from the (same) womb, we find the emphasis placed on relationship through the female line." This is quite incorrect. *κασίγνητος* is a compound of *κάσις* "brother, sister" and *-γνητος* "born, begotten of" (cf. Latin *-gnātus*). *ἀγάστωρ* is a derivative of *γαστήρ* "belly, womb," *ἀ-* being a

¹ I am using this word in its linguistic sense.

copulative prefix; *ἀγάστωρ* is synonymous with *ἀδελφός* in its etymological sense, hence "from the same womb; near kinsman." Neither element of *ἀγάστωρ* has anything to do with either element of *κασίγνητος*. Moreover, even if these words could conceivably be shown to be related, Wallis's reasoning would still be faulty, for the fact behind such words as *ἀδελφός* and *ἀγάστωρ* is a physiological, not a sociological one.

P. 422, l. 14: "This [*κασίγνητος*, *ἀγάστωρ*] became the *agnatio* of Latin, which there meant, not maternal but paternal relationship, suggesting a change in the method of reckoning descent, though there seems to be no historical evidence on the point." It is difficult to see how a Greek word, not borrowed by Latin, could "become" a Latin word. *ἀγάστωρ*, which is supposed by Wallis to point to matrilineal reckoning, is in no way connected with *agnātiō*, an abstract noun from *agnātus*, itself compounded of *ad-* "to" and *-gnātus* "born." The primary meaning of *agnātus* is thus "born to; kin to (one's primary, paternal, lineage)," as opposed to *cognātus* "born with; secondary, maternal, kin." *-gnātus*, as already pointed out, is cognate with Greek *-γνητος*, but this is here of no significance whatever. Wallis's efforts to prove a former matrilineal reckoning on the evidence of etymology are all futile.

P. 422, ll. 21, 22: Correct *πατρωνήτωρ* and *πατρωνάτωρ* to *πατρομήτωρ* and *πατροπάτωρ*, respectively.

P. 422, l. 26: Synonymous with *πατροκασιγνήτη*, "father's sister," is *πατραδέλφη*.

P. 422, l. 27: Synonymous with *μητροκασιγνήτη*, "mother's sister," is *μητραδέλφη*, also *μητράδελφος* (fem.).

P. 422, l. 30: Correct *μητραδελφός* to *μητραδελφέος*.

P. 423, l. 1: There is no Greek adjective *πάτρικος*. Perhaps *πάτριος* was meant.

P. 423, l. 2: "Our 'patrimony'" is not directly connected with *πατρικός* or *πάτριος*. It is, of course, borrowed from Latin *patrimonium*, which primarily meant "an estate bequeathed by a father to his children." The wider application of the term in English is not in the least bound up with the wider connotation ("hereditary") of the Greek words.

P. 423, l. 6: In defining *νύος* Wallis should have made it clearer that the primary meaning is "daughter-in-law" as proven by comparison with Indo-Germanic cognates, and that the other meanings ("bride; wife; any female related by marriage") are secondary.

P. 423, l. 7: *ἐκυρός* is defined as "step-father; father-in-law." It would have been useful to point out that its primary meaning is "father-in-law," originally "man's father-in-law," as abundantly proven by reference to Indo-Germanic cognates.

P. 423, l. 8: *πενθερός* is defined as "father-in-law" and, secondarily, other male relatives by affinity. It would have been useful to point out that, in contrast to *ἐκυρός*, it originally meant only "woman's father-in-law."

P. 423, l. 12: Analogously to *πενθερός*, *πενθερά* originally meant only "woman's mother-in-law." Wallis states that *πενθερά* is "derived from *πενθέω*, to lament, to bewail." This etymology must be summarily dismissed. *πενθερός* and *πενθερά* are derivatives from Indo-Germanic **bhendh-* "to join" (whence our *bind*); compare also Sanskrit *bāndhu-* "relative of the wife," Lithuanian *beñdras* "companion."

P. 423, l. 19: *ἐκυρα* should be corrected to *ἐκυρά*. It originally meant not "mother-in-law" but "man's mother-in-law." Analogously *ἐκυρός*, *ἐκυρά* also indicated "step-mother."

P. 423, l. 13: Correct *εἰνάτερες* and *ἐνάς* to *εἰνατέρες* and *εἰνάς*. There is no warrant for Wallis's statement that *εἰνατέρες* "wives of brothers" "seems to be derived from *εἰνάς*, ninth day." *εἰνατέρες* has, of course, well known Indo-Germanic cognates: Latin *janitrīcēs*, Sanskrit *yātaras*, Old Church Slavic *jetry*, Lettish *jentere*, Lithuanian *tnė*. Greek *εἰν-* (or *ἐν-*) of *εἰνατέρες* (or *ἐνατέρες*) goes back to Indo-Germanic **yen-*, while *εἰν-* of *εἰνάς* goes back to Indo-Germanic **enw-*.

P. 423, l. 20: In defining *γαμβρός*, it would have been well to point out more clearly that its primary meaning is "son-in-law." In spite of some phonological difficulties there can be no reasonable doubt that it is cognate to certain other Indo-Germanic terms for "son-in-law": Latin *gener*, Sanskrit *jāmātar-*, Albanian *dqnder*, Old Church Slavic *zeti*, Lithuanian *žentas*.

P. 423, l. 23: As feminine counterpart of *ἀνεψίος* should have been listed also *ἀνεψιά* "female cousin; niece." Wallis' statement that "from this (?) is formed *νέποδς* [correct to *νέποδες*], 'descendants'" is misleading. Both *ἀνεψίος* and *νέποδες* (not properly a kinship term at all, but a rather obscure Homeric term plausibly translated as "brood"; *-ποδ-* for older **-pot-* because of folk-etymological confusion with *ποδ-* "foot") are to be derived from Indo-Germanic **nepot-*, **nept-* "grandchild, descendant; nephew, niece." *ἀνεψίος* is a derivative, originally **a-nept-ijós*, with copulative *a-*; it is *νέποδες*, despite its generalized and obscured meaning, which is nearer the original Indo-Germanic form. Sanskrit *napot* should be corrected to *napāt-*.

P. 423, l. 25: *μητρυνιά* is not translated by Wallis. It means "step-mother." Its corresponding masculine *μητρυνίος* "stepfather" is synonymous with *πατρυνίος*.

P. 423, l. 27: Correct *παις* to *παῖς*.

P. 423, l. 33: It is difficult to see what relevancy there is in *θηλύπαις*, which is merely a descriptive compound ("female-childed, possessing a female child, having given birth to a female child"), quite without interest in a set of kinship terms. There are, of course, no end of such compounds in Greek, e. g., *ἀρρενογόνος* "begetting male children," *ἀρρενόπαις* "having a boy," *ἀρρενοτόκος* "bearing male children," *ἄπαις* "child'ess."

P. 423, l. 34: Correct *μητρυννυμικός* and *κατρυννυμικός* to *μητρωννυμικός* and *πατρωννυμικός* respectively.

There is one Greek kinship term that, obscure as it is, might have been included by Wallis with advantage because of its historical affiliations. This is *ξορ* or *ξωρ*, plural *ξορες*, developed, with perfect regularity, from Indo-Germanic *swesores* "sisters." The term does not occur in Greek literature but only as glosses in Hesychius. I quote from O. Schrader:¹ "The Indo-Germanic word for sister has disappeared in Greek except for one trace, which is preserved in the Hesychian [glosses] *ξορ* (*ξωρ*) *θυγάτηρ*, *ἀνεψιός* and *ξορες* *προσθήκοντες*, *συγγενείς*. Just as Homeric *κασίγνητος* indicated both the brother and the children of the brother, so *ξορες* may originally have signified "sisters," then "children of sisters, children of siblings" (*ἀνεψιοί*). Cf. Latin *consobrini* from **con-sosr-ini* : *soror*. These are probably meant by the *προσθήκοντες*, *συγγενείς*. *ἑθυγάτηρ*,² however, is probably an error for *ἀδελφή*, the ordinary term for sister in Greek." It is difficult to see, however, why Hesychius should have said "daughter" when he meant "sister." Is it not barely possible that by the gloss "*ξορ* *θυγάτηρ*, *ἀνεψιός*" Hesychius meant that daughter and nephew call each other *ξορ* (cousin of opposite sex)?

I do not understand why Wallis has omitted from his set of Greek kinship terms:

πατήρ, "father,"
μήτηρ, "mother,"
υῖος, *ὕος*, "son,"
θυγάτηρ, "daughter,"

particularly as each of these has such widespread Indo-Germanic cognates.

P. 424, l. 24: Wallis, referring to Herodotus' testimony as to matrilineal reckoning among the Lycians, calls these "near kin to the Greeks"

¹ *Reallexikon der Indogermanischen Altertumskunde*, 1901, s. v. *Schwester*.

² These words mean "relatives, kinsmen."

³ I.e., "daughter."

(or does this phraseology go back to Herodotus?). No theory of the former existence of matrilineal reckoning among the Greeks can derive support from its presence among the Lycians and related peoples of Asia Minor. The Lycians were not only not "near kin to the Greeks," they were not even an Indo-Germanic people. This is clearly established by their numerous inscriptions, which, though easily read, are practically unintelligible. See Hirt, *Die Indogermanen*. Aside from the Greek (mostly Ionian) colonies of the western coast, the only clearly Indo-Germanic people of Asia Minor in Hellenic times were the Phrygians, whose scanty linguistic remains show them, apparently, to have been rather closely connected with the Thracians.

P. 426, l. 11: It is misleading to imply, as Wallis does, that *Vetter* is nowadays commonly used for "uncle." It is still used in that sense dialectically (e. g., in Judeo-German), but in standard German it now means "male cousin."

P. 426, l. 12: *Oheim*, needless to say, is not derived from *avunculus*, with which it is merely cognate, and that not very directly.

P. 426, l. 16: "Oheim seems related to the Frisian *ehm*, meaning mother's brother, and both of these to the Gothic *Awo*, 'grandmother.'" Wallis's facts are stated a bit clumsily. "Mother's brother" is **auma-* or **auhaima-* in West Germanic: Old High German *ðheim*, Anglo-Saxon *ēdm* (whence, if I am not mistaken, our English proper names *Eames*, *Ames*), Old Frisian *ēm*, Dutch *oom*. This set of words is a derivative in *-ma-* or *-aima-* of an Indo-Germanic stem **awo-*, **awi-* "mother's brother": Old Cornish *ewi-ter*, Middle Welsh *ewi-thr* (also "father's brother"), Lithuanian *awj-nas*, Old Prussian *awi-s*, Old Church Slavic *ujŭ*, Latin *avu-nculus* (diminutive of *avu-s*, cf. *homunculus* from *homō*). Indo-Germanic **awo-*, however, primarily means "grandfather": Armenian *hav*, Latin *avus*, German (dialectic) *awwə*, also Old Norse *ǿ* "great-grandfather." It is true that Gothic *awō* means "grandmother," but *awō* is merely a feminine correlate to an **awa* "grandfather" (cognate to Old Norse *ǿ*) that does not happen to occur in our very scanty Gothic remains. Nowhere is negative evidence so dangerous as in dealing with Gothic. Wallis's reference to Gothic *awō* seems to be actuated by a desire to emphasize an earlier matrilineal reckoning. He is as unfortunate here in using the linguistic evidence as in Greek.

P. 426, l. 18: Correct *Aidam* to *Eidam*; *ei* should be *eid*. I do not see how the relation of *Eidam* "son-in-law" to *Eid* "oath" (this etymology seems fairly well established) bears on matrilineal reckoning. The circle of ideas touched upon is probably bridal purchase, certainly

not descent. Nor do I see what sociological fruit is to be gathered from the purely descriptive term *Tochterman* (read *Tochtermann*) "daughter's husband."

P. 426, l. 21: "*Enkel*, meaning 'grandchild,' seems related to the older form *Ahnen*, meaning 'ancestors,' and to *akna* [read *ana*], the feminine form, which seems cognate with [Latin] *anus*, old woman." Here again the facts are put unclearly and rather misleadingly. *Enkel* "grandchild" is from Old High German *eninkilt*, *eninchild*, a diminutive of *ano* "grandfather," *ana* "grandmother." The reciprocal use of "grandparent" for "grandchild" is seen also in Old Irish *ae* "grandson" (from Indo-Germanic **awios*; cf. Latin *avus*, *avia*). *Ahne* (plural *Ahnen*) is the modern form of *ano* in its generalized significance. It is certainly not specifically connected with *ana*, which is merely the feminine correlate of *ano*. While it is true that Old High German *ano* and *ana* are cognate to Latin *anus*, it does not follow that *Enkel*, a quite secondary derivative of *ano*, bears a trace of matrilineal reckoning.

P. 426, l. 26: Wallis implies that *Geschwister* in the sense of "brothers and sisters" is old enough to bear on the problem of matrilineal reckoning. This is erroneous. The word is etymologically merely a collective plural of *Schwester*. In Old High German and Old Saxon *giswēster* still means "sisters," not yet "brothers and sisters." This *giswēster* is strictly parallel to a similarly formed Germanic word for "brothers": Old High German *gibruoder*, Old Saxon *gibrōthar*, Anglo-Saxon *gebrōðor*. *Geschwister*, then, in its present meaning represents not a survival of an archaic method of reckoning descent, but a relatively late extension of its proper meaning.

P. 427, l. 1: German terms beginning with *Schwieger*- "in-law" have nothing to do with *Schwester*. *Schwieger*- is a generalized term for relatives by affinity based on *Schwieger* "mother-in-law" (Old High German *swigar*) and *Schwäher* "father-in-law" (Old High German *swēhur*). Nor does *verschwiebert* primarily mean "besistered," as Wallis would have it, but "beparent-in-lawed"; its actual meaning is "related by marriage," not "related to." *Schwager* (Old High German *swāgur*) "brother-in-law" (originally "wife's brother") is a derivative from *Schwäher* and may be interpreted as "belonging to one's father-in-law, father-in-law's son" (cf. Sanskrit *śvāśura*- "belonging to one's father-in-law": *śvāśura*- "father-in-law"). All this has little enough to do with matrilineal reckoning.

P. 427, l. 33: Wallis's statement that "there is in early German no term for mother's brother" is not warranted by the facts. West-

Germanic **auma-*, **auhaima-*, "mother's brother," as we have seen, has even relatives, though not identical cognates, in non-Germanic languages. That **auhaims* does not happen to occur in our Gothic records is probably due to accident.

P. 427, l. 36: Old High German *fatureo* (or *fetiro*) "father's brother" is not "from Latin *patruus*," but is merely cognate with it. Indeed, it is more closely related to Sanskrit *pitṛvya-* than to Latin *patruus*. Old High German *fatureo* and Sanskrit *pitṛvya-* point to Indo-Germanic **pitṛwyo-*; Latin *patruus* and Greek *πάτριος* (contracted from *πάτριωνος* to Indo-Germanic **pitṛwo-*).

P. 428, l. 1: There is a curious inadvertence here. The term *snura* "daughter-in-law" could not be used by the wife, but only by her husband's parents. As far as *snura* is concerned, there is no point in saying that "no corresponding terms were used by the husband." It is different, of course, with *zeihhur* "husband's brother."

P. 428, l. 18: *Gesippt* is not "convivial," but "related by blood." It is formed from *Sippe* "sib, group of blood-kin."

P. 428, l. 22: I do not understand "the male descendants of *Enkeln*, father's brother." *Enkeln*, of course, means "grandchildren."

These are the corrections of detail that it seems necessary to make. I have left myself no room for a discussion of the larger points involved in Indo-Germanic kinship systems and their connection with social institutions and usages. The reflection of patrilineal reckoning in these systems is brought out fairly well by Wallis. On the other hand, much energy is fruitlessly expended in the attempt to demonstrate the existence of traces of an earlier matrilineal reckoning. It is a pity that Wallis did not take up more extensively the treatment of the one great process exemplified in the history of modern Indo-Germanic kinship systems (English, French, German). I refer to the tremendous simplification and systematization characterizing these systems, the two main elements in the process being the complete abolition of all distinction between agnates and cognates and the remodelling of the system of affinity in a manner strictly parallel to the system of consanguinity. These destructive and reformatory changes have gone hand in hand with the development of new social and psychological points of view.

E. SAPIR

GEOLOGICAL SURVEY OF CANADA,
OTTAWA, ONT.

CENSUS OF THE SHI'WANAKWE SOCIETY OF ZUÑI

IN "Zuñi Kin and Clan"¹ Dr. Kroeber concludes that the connection between Zuñi clans and fraternities is slight, and, more particularly, that

it is blood relationship, and beyond this common home life, that most frequently determine choice of fraternity; not clan pertinence.

The conclusion was based largely on a determination of the fraternity affiliations of the Coyote and Tobacco clans and the clan affiliations of the *ne'wekwe* fraternity. A like conclusion may be reached from the following census of the *shi'wanakwe* fraternity taken in September, 1918.

Fraternity Name†	Personal Name‡	Clan	Kin	Notes
1. Pihalapti	Kashku	Corn		<i>mosona</i> , head of fraternity and <i>akwamosi</i> , medicine head
2. Lailuhtiwa	Kuwaiti	Tobacco	Maternal uncle of 35	<i>pekwin</i> , speaker of fraternity
3. Tahuka	Chakwen	Crane	Father of 11 and 23	
4. Yekusiti	Yekusiti	Corn	Brother of 36, father-in-law of 5	
5. Ayawaluhti	Koko	Crane	Son-in-law of 4, nephew by marriage of 36	
6. Kuitahtiwa	Wa'shu	<i>Pikchikwe</i>	Maternal uncle of 34	
7. Tsastimani	Tsawulutesi	Frog	Father of 44	
8. Tsatai'isiwa	Tsatai'isiwa	Sun	Footnote 4	
9. Tayihukyahti	Unknown. Known as son of Tsi-poyo	<i>Pikchikwe</i>		
10. Paiyuhtiwa	Shalawi	Badger	Nephew of 11	Initiated for smallpox
11. Emanaitiwa	I'tsayu'i	Badger	Son of 3, half-brother of 23. Maternal uncle of 10	Initiated in 1916 or 1917 because while he was herding sheep a dog talked like a person to him

¹ *Anthropological Papers of the American Museum of Natural History*, vol. XVIII, pt. II, New York. 1917.

² Giving a fraternity name to an initiate is called *ikoshonakya*, "they wash one another." *tutatsi wokoshokya*, "priest washes them" refers to Catholic baptism (*tutatsi*, priest; *kosho*, wash or wash the body; *wo*, prefix denoting plurality of object). *awalenakya* is the term for the native hair washing rite.

³ 1-25, 43, 47, 48 are men; 26-42, 44-46 are women. The informant, a member of the *shi'wanakwe*, observed this order. In classifying thus by sex, the irregularities at the close were after-thoughts of the informant.

⁴ Two of his mother's sisters, now dead, were members.

Fraternity Name	Personal Name	Clan	Kin	Notes
12. Luhanatiwa	We'tsi	Eagle	Maternal uncle of 45	Initiated for smallpox
13. Iwayuhtiwa . . .	I'hayichu	<i>Pikchikwe</i>	Son of 46	Initiated in 1912 because that winter in a <i>wo-temla</i> dance his mask fell off
14. Layatsilu	Shuu'ta	Turkey	Son of 31, brother of 28	Transferred from <i>pechasi-lokwe</i> (Bed bug fraternity)
15. Yak'atiwa	Meshiwan-nakwa ¹	Eagle	Brother-in-law of 26, his brother's wife	Initiated for smallpox
16. Piwuluhtiwa . . .	Elliya	Sun	Cousin by marriage of 20	Initiated for measles
17. Lawaitsaitsilu . .	Kwanpeleya	Sun	Maternal grandfather of 48	
18. Tsaiikusiwa	Likiy	<i>Pikchikwe</i>		Initiated for smallpox
19. Laiishuktiwa . . .	Aiyatsa-tiwa	Turkey	Son of 39	Initiated for smallpox
20. Laiak'ahitiwa . . .	Kumaa	<i>Pikchikwe</i>	Cousin by marriage of 16	Initiated when very young
21. Laiuptahsiwa . . .	Wistika	<i>Pikchikwe</i>	Younger brother of 24	Initiated for smallpox
22. Tsawaiyatiwa . .	Lemi	Eagle	Father of 25	Head of the rain priests of the East, ² one of the 6 ranking priest-hoods
23. La'mitiwa	Ky'etsini	<i>Pikchikwe</i>	Son of 3, half-brother of 11	Initiated for smallpox
24. Latsaikiyiwa . . .	Hui	<i>Pikchikwe</i>	Older brother of 21	Initiated for smallpox
25. Yai'ahitiwa	Luhsa'i	Coyote	Son of 22	Initiated for measles
26. Pewulasititsa . . .	Kuasias-witsa	<i>Pikchikwe</i>	Sister-in-law of 15	Initiated because several children, ten or twelve, were still-born. Daughter of Okash, head of rainpriests of the South
27. Lantialuntsa . . .	Unknown. Known as Shumali's daughter or Shikya's wife	Turkey		Initiated for smallpox
28. Laiusitietsa	Unknown. Known as Shuu'ta's younger sister	Turkey	Daughter of 31, younger sister of 14	Initiated for smallpox

¹ His father was an "American." *me* > *melika*, American.

² Sometimes referred to as priests of the West, a confusion due, I think, to the fact that their ceremonial house is on the West side.

Fraternity Name	Personal Name	Clan	Kin	Notes
29. Waiyautitsa....	Unknown. Known as daughter of Tsiwakwe	Eagle	Tsiwakwe, her father, is mater- nal uncle of 23	Initiated for smallpox
30. Tsayanahtitsa..	Unknown. Known as wife of Tsaiyaisi	Coyote	Sister of 33	
31. Unknown.....	Unknown. Known as mother of Luis Chaves	Turkey	Mother of 14 and 28	
32. Unknown.....	Unknown. Known as wife of Nashipu	<i>Pikchikwe</i> Coyote	Sister of 30	
33. Unknown.....	Unknown. Known as wife of Andreas	<i>Pikchikwe</i>	Daughter of sister of 6	Initiated for sickness
34. Unknown.....	Mari Innote	Tobacco	Daughter of sister of 2	Initiated for sickness
35. Unknown.....	Susie Monte		Sister of 4, aunt by marriage of 5	
36. Unknown.....	Known as mother of Tihailu	Corn		
37. Tsa'ayutitsa....	Tsa'ayu- titsa	Crane	Mother of 38	
38. Unknown.....	Unknown. Known as daughter of Tsa'ayu- titsa	Crane	Daughter of 37	
39. Unknown.....	Unknown. Known as wife of Lahela	Turkey	Mother of 19	
40. Unknown.....	Unknown. Known as wife of Kanawihti	<i>Pikchikwe</i>		
41. Unknown.....	Unknown. Known as wife of O'- nats'ana (Little Teeth)	Corn	Sister-in-law of 5, husband of her sister	There appears to be a mistake here in the record. 41 might be in- ferred to be the daughter of 4, but she cannot be because she belongs to the same clan. Pre- sumedly the re- lationship of 41 to the wife of 5 is cousinship

Fraternity Name	Personal Name	Clan	Kin	Notes
42. Unknown.....	Unknown. Known as mother of Lolate	Eagle	Elder sister of 43	Likewise member of <i>makye lanna</i> (Big Firebrand) fraternity ¹
43. Yuyihi'maka ...	Ts'apitsehe	Eagle	Younger brother of 42	
44. Unknown.....	Unknown. Known as wife of Tsuyuski	Turkey	Daughter of 7	Initiated be- cause of sick- ness in child- birth
45. Unknown.....	Unknown. Known as wife of Sensi	Eagle	Daughter of sis- ter of 12	Initiated for smallpox
46. Tsailusi	Unknown. Known as wife of Italuhsi	<i>Pikchikwe</i>	Mother of 13	
47. Kawihtiwa	We'ti	Sun		
48. Unknown.....	Unknown. Known as grandson of Kwan- peleya	Badger	Grandson of 17	Initiated for sickness

Of the 48 members of the fraternity the clan affiliations are:

<i>Pikchikwe</i> ²	13
Eagle.....	7
Turkey.....	7
Sun.....	4
Corn.....	4
Crane.....	4
Coyote.....	3
Badger.....	3
Tobacco.....	2
Frog.....	1
	<hr/> 48

Family groups are represented by:

2, 35	13, 46	21, 24
3, 10, 11, 23, 29	14, 28, 31	22, 25
4, 5, 36, 41	15, 26	30, 33
6, 34	16, 20	37, 38
7, 44	17, 48	42, 43
12, 45	19, 39	

¹ Mentioned incidentally. Membership in other fraternities had not been inquired into. Many persons belong to two fraternities or even more.

² The largest by far of the clans.

More specifically the kinship relations represented are:

Mother and child.....	5
Father and child.....	4
Maternal uncle and nephew or niece.....	4
Sister and brother.....	3
Brother and brother or half-brother.....	2
Sister and sister.....	1
Cousins.....	1
Grandfather and grandson.....	1

Of relations by marriage there are 5. Of these 4 are found or might be found within the same household and 1 is inferably between members of different households.

Of kinship relations 15 are within the clan and 6, without the clan. Clan members are distributed according to kinship ties:

	KIN	NOT KIN
<i>Pikchikwe</i>	6	7
Eagle.....	4	3
Turkey.....	5	2
Sun.....	1	3
Corn.....	2	3
Coyote.....	2	1
Badger.....	3	—
Crane.....	2	1
Tobacco.....	2	—
Frog.....	—	1

In taking the *shi'wanakwe* census, data were also secured which contribute to our knowledge of the *shi'wanakwe* organization and in a measure to that of the Zuñi fraternity in general.

The Rocky Mountain beeplant and the meat of the jack-rabbit are taboo to the *shi'wanakwe*. The same taboos fall upon the *shikani* (*kurena*) fraternity or society of Laguna¹ and of Cochiti.² The *shi'wanakwe* have a traditional connection with the *ne'wekwe* just as the *shikani* or *quirana* have with the *kashare*,³ the Keresan counterpart of the *ne'wekwe*. *shi'wanakwe* and *ne'wekwe* are said to have separated during "the coming

¹ E. C. Parsons, "Notes on the Ceremonialism of Laguna," *Anthropological Papers of the American Museum of Natural History*, vol. xix, pt. iii, New York, 1919.

² Father Noël. Dumarest, "Notes on Cochiti," *Memoirs, American Anthropological Association*, vol. vi, no. 3, 1919.

³ At Laguna the *kashare* are said to have got their rules from the *shikani*.

The *kashare* come from the east where the Sun lives. They themselves live under a lake where there is a whirlpool. The rings around their eyes and mouth represent the whirlpool.

up," and there is a specific myth of *shi'wanakwe* producing the first *ne'wekwe*.¹ A certain *shi'wanakwe* member is commonly referred to as *ne'wekwe an cha'le*, the child of the *ne'wekwe*, and 'at times he "plays" with them. But whenever the *nemosona* cannot get enough *ne'wekwe* to play, he may invite any *shi'wanakwe* to play. Afterwards the head of the coöperating *shi'wanakwe* might be washed in a *ne'wekwe* household, but "they would not name him" *i. e.*, initiate him into the *ne'wekwe*. Both the *shi'wanakwe*² and the *shikani* appear to have a claim upon the use of the cosmic symbols, although this use is so general that any special adoption is dubious. The two groups also have a claim upon the use of the sparrow-hawk feathers or, perhaps one should say, this feather is associated with them. The *shi'wanakwe* wear two sparrow-hawk feathers in their hair in place of the eagle feather worn by other fraternities, and to the masks of the *shikani* (*quirana*) of Cochiti sparrow-hawk feathers were attached. In Laguna the *shikani cheani* shared with the *chakwena* impersonations the right to the sparrow-hawk feather.

The *shikani*, like other Keresan societies, have both curing and rain-making functions, and at Cochiti, as well as at Laguna, the society was split into curing and rainmaking divisions, the *quirana* (*kurena*) were rainmakers only. Moreover, at Cochiti, a woman was attached to the group and called *shiwanna* (storm, *i. e.*, rain)³ *chaiani*, performed a special rainmaking rite with suds and had charge of a special fetich.⁴ In pursuing the equation between the Keresan *shikani* and the Zúñi *shi'wanakwe* we note with interest that there is a tradition at Zúñi that the *shi'wanakwe* were formerly rainmakers, *i. e.*, *ashiwanni*. On one occasion they caused so much rain that the people got angry and they gave up being *ashiwanni*.⁵ The monthly prayer-stick offering of the *shi'wanakwe*, unlike that of the other fraternities, contains feathersticks to the dead, *i. e.*, the rainmakers.

In reflecting upon these facts which suggest that the *shi'wanakwe* was once, like the *shuma'kwe*,⁶ an undifferentiated type of society with

¹ See M. C. Stevenson, "The Zúñi Indians," p. 428. *Twenty-third Annual Report, Bureau American Ethnology*, 1901-02.

² E. C. Parsons, "Notes on Zúñi," Pt. II, pp. 229-30, *Memoirs, American Anthropological Association*, vol. IV, no. 4, 1917.

³ The masked rainmakers at Cochiti are or were also called *shiwanna*.

⁴ A like functionary attached to the *ishteani* or Flint society.

Stevenson mentions an old woman custodian of the *shiwannakwe* fetich. (The Zúñi Indians," p. 429.)

⁵ Cp. too, "The Zúñi Indians," p. 429.

⁶ The officers of the *shuma'kwe* are *ashiwanni* and the fraternity conducts rain

both curing and rainmaking functions and organization, we should recall another Zūfi tradition, the tradition that the *shi'wanakwe* is the oldest of the Zūfi fraternities.

ELSIE CLEWS PARSONS

POLYNESIAN TOMBS: A CORRECTION

IN a note published in this journal (vol. xx, no. 4, p. 456) I proposed to amend in some particulars Dr. Rivers' conclusions on "Sun-Cults and Megaliths in Oceania" (vol. xvii. (1915) p. 443). Unfortunately I was on service abroad and having only jotted notes to work upon it was impossible to correct any oversight that might get in. Dr. Rivers points out to me that on p. 460 I have overlooked the strong evidence he brought forward proving the connection between the *areoi* and sun-worship, that it was not a mere inference of his, but a fact vouched for by Maerenhout. This gives the *areoi* a very different aspect from that which I suggested. I must apologize for this oversight; having only extracts to work on I looked to Dr. Rivers' criticisms to prevent any inaccuracy from getting into print; but unfortunately they were attracted by other matter and so missed this unfair statement of his own case.

A. M. HOCART

EXETER COLLEGE,
OXFORD, ENGLAND

COCA AND BETEL CHEWING: A QUERY

IN his work *The American Indian* (p. 30), Dr. Wissler calls attention to the striking coincidence between the method of coca-chewing, as it prevails along the west coast of South America, and the betel-nut consumption in southeastern Asia and Melanesia, in that both narcotics are taken together with pulverized shells or ashes. The analogy is so manifest and complete that the assumption of an historical connection becomes inevitable. The question arises, however, whether the American practice is pre-Columbian or merely the result of circumstances growing out during the period of the *Conquista*. Being engaged for years on the collection of materials for a history of the cultivated plants of this continent, I recently had occasion to read a book by Max Steffen, entitled *Die Landwirtschaft bei den altamerikanischen Kulturvölkern* ceremonials. In Keresan *shuma* means the dead, the skeleton. The *shumaekoli* masks of both Laguna and Sia were passed over to the Zūfi, but the Zūfi fraternity antedated these gifts. Belonging apparently to the same complex of concepts as the *shi'wanakwe*, the *shuma'kwe* may have been at Zūfi a later institution.

(Leipzig, 1883), which seems to be little known in this country. There we are informed as follows (p. 60): "When Oviedo (*Hist. gen., lib. 26, c. 30*) asserts that the Chibcha chewed the *haya* [-coca] leaf with lime like the Peruvians, he is surely wrong in this point; for Piedrahita (*lib. 1, c. 3*), a careful and trustworthy writer, reports that they had formerly chewed the plain leaf, and that only since the arrival of the Spaniards they have added the lime of snails introduced by some Spaniards and called *popóro*, as well as another substance, styled *anua*, which intoxicates the senses." The Spanish text of Piedrahita runs as follows:

De antes usaban mascar esta yerva simple, pero ya la mezclan con cal de caracoles, que han introducido algunos Españoles, y llaman Popóro, y con Anua, que es otro genero de masa que embriaga los sentidos.

On the other hand, however, in speaking of the coca cultivation of ancient Peru, Steffen says (p. 116), "As at present, so also prior to the Conquest, the leaf was rolled up into small globules, usually with unslaked lime, and thus chewed." The authority for this statement is Oviedo (*Hist. gen., lib. 26, c. 30*). Here, Oviedo is upheld, at least not contradicted, by Steffen, while in the case of the Chibcha of Colombia he is wrong. If he should really err in the latter case, is it not equally possible that he may err in the case of Peru? Or if we assume pre-Spanish practice for Peru, why reject it for Colombia, merely on the authority of Piedrahita? Steffen's standpoint seems to me inconsistent. T. A. Joyce (*South American Archaeology*, p. 122) remarks with reference to Peru, "It has been said that lime was not used in times previous to the conquest." Unfortunately he does not tell us by whom it has been said, and on what evidence the statement is based ("one of the Conquerors says" is one of the rubber-stamps gracing his pages).

I appeal to Americanists for help in elucidating this question which is one of importance. If the Spanish importation theory be correct, the historical problem would naturally be much (I even feel like saying, unfortunately, too much) simplified. With all respect for Piedrahita, however, I am not inclined to accept it solely on his testimony. Are there other ancient Spanish sources touching this point? Is there any archaeological evidence? Have remains of coca leaves with or without lime ever been discovered in ancient graves of Colombia and Peru? Any information will be gratefully appreciated.

B. LAUFER

COCA AND BETEL CHEWING: A REPLY

The question brought up by Dr. Laufer is an interesting one. Pedro de Cieza de Leon, perhaps the most reliable of the early chroniclers, went to the New World the year that Pizarro began his Conquest (1532). In Chapter xcvi of his "Travels" he tells us that in all parts of the Indies through which he traveled he observed that the natives took great delight in having herbs and roots in their mouths. In most of the villages subject to Cali and Popayan they go about with small *coca* leaves in their mouths to which they apply a mixture, which they carry in a calabash, made from a certain earth-like lime.

A very common object in prehistoric Peruvian collections is the lime-gourd, often full of lime. The gourds commonly contain the stick (often of bone) by which the lime was introduced into the cud.

In the representations of scenes of their daily life, on their pottery vessels, the ancient Peruvian potters have solved many knotty problems for us, and they did not neglect the one under discussion. Vessels showing human figures with lime gourds, and indeed in the act of taking the lime are not uncommon. A good example from Trujillo will be found in Dr. Baessler's "Ancient Peruvian Art," plate 39, figure 199.

The finding of so many lime-gourds and representations of men taking lime with pottery known to be pre-Spanish would seem to prove that the use of lime antedated the advent of Europeans.

C. W. MEAD

OFFICIAL CORRESPONDENCE

NATIONAL RESEARCH COUNCIL

TO THE MEMBERS OF THE COUNCIL OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION:

I have received a communication from the National Research Council stating that a Division of Anthropology and Psychology has been created in that organization and that the Anthropological Association is invited to select a number of delegates to participate in the final organization of the Division of Anthropology and Psychology. It seems advisable to have a special meeting of the Council to consider this proposal and to make the selection of delegates. I am therefore considering the calling of a Council meeting early in October, notice of which will be sent you in due time. In the meantime, I should be glad to have you consider the proposed plan, the outline of which is as follows:

As a detail in the administration of the Division, a secretary will be employed to act for the division as a whole. This officer must reside in Washington.

1. The membership of the Division shall be equally divided between psychology and anthropology, and for the present shall be limited to nine members representing psychology and nine representing anthropology.

2. The leading organization in each of the two subjects represented shall be asked to nominate six representatives for membership in the Division, the six persons thus nominated, in conference with the Executive Board of the Research Council to nominate the remaining three for each subject. It is understood that the American Psychological Association will nominate the six members for psychology, and the American Anthropological Association the six members for anthropology.

3. The eighteen members selected shall elect from their number a Chairman for the Division of Anthropology and Psychology, and the nine representatives of each subject shall elect a chairman for a section to be organized for each subject.

4. For the present the work of the Division shall be divided so that general matters will be cared for by the whole Division under the direction of the Chairman of the Division, the sections holding rather frequent meetings under the direction of the Section Chairman.

The general plan for the organization of the National Research Council was published in *Science*, May 16, 1919. This will give an idea of the organization as a whole in which our Division is to function.

CLARK WISSLER,
President

TO THE MEMBERS OF THE COUNCIL OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION:

We have been invited to select six delegates to the proposed section of the National Research Council dealing with anthropology and psychology. The original request of the Research Council was that we call a special meeting to pass on the proposal and to select delegates, but it has proven impossible to have such a meeting this summer nor is there reason to believe that a sufficient number of members could be assembled, before the annual meeting. In view of these difficulties it has been proposed that a mail vote be taken. While there is no authority for such a procedure it seems the only solution. Will you not, therefore, register your vote and so pledge yourself to vote for the approval of this action at the next annual meeting. Please vote upon the following:

1. Do you favor participation in the organization of the National Research Council?
2. The Executive Committee has nominated twelve candidates for the six places upon the Sectional Committee of the National Research Council. Please make up a ballot containing these twelve names, or others, in order of your preference. The six receiving the greatest number of votes will be declared elected.

A prompt return to the undersigned is desired.

CLARK WISSLER,
President

NEW YORK CITY,
September 2, 1919

EXECUTIVE COMMITTEE NOMINATING BALLOT

Boas	Wissler	Goddard	Lowie
Fewkes	Laufer	Swanton	Hooton
Kroeber	Dixon	Tozzer	MacCurdy

TO THE MEMBERS OF THE EXECUTIVE COMMITTEE, AMERICAN ANTHROPOLOGICAL ASSOCIATION:

The canvass of the mail vote of the Council has been completed. The President appointed a committee consisting of B. T. B. Hyde, George H. Pepper, and Louis R. Sullivan to canvass the vote. They report as follows:

Dear Dr. Wissler:

Herewith you will find a report of the committee appointed by you to canvass the ballots of the Council of the American Anthropological Association for

six members in the National Research Council. The total number of votes cast was forty-eight. Question A: Yes, 40; No, 2; non-voting, 6. Question B: the following have a majority vote for their respective positions.

1. Boas

3. Kroeber

5. Fewkes

2. Wissler

4. Laufer

6. Dixon

Respectfully submitted,

(Signed) B. T. B. HYDE

GEO. H. PEPPER

L. R. SULLIVAN

Very truly yours,

CLARK WISSLER,

President.

NEW YORK CITY,

September 17, 1919

TO THE MEMBERS OF THE COUNCIL OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION:

By authorization of the Executive Committee, acting upon the choice of the Council as indicated by the report of the special committee to canvass the ballots of the Council, I declare the following members of our Association elected as delegates to the National Research Council, Section of Anthropology and Psychology: Franz Boas, Roland B. Dixon, J. Walter Fewkes, A. L. Kroeber, Berthold Laufer, Clark Wissler.

CLARK WISSLER,

President

NEW YORK CITY,

September 24, 1919

NEW YORK, SEPTEMBER 20, 1919.

Dear Professor Holmes:

Since you have circulated among the Council of our Association a number of communications protesting against the result of the trial ballot of the Executive Committee, I hope you will permit me to reply in the same open manner.

First, allow me to call attention to the clause in our Constitution defining the status, powers, and duties of the Executive Committee. It is clearly stated that this Committee shall "act in behalf of the Association, except during the meetings of the Association or of the Council; in all matters requiring attention." (The members are elected and not appointed by the President.) There can be no question as to the right of the Committee to itself name the delegates, if it chose to

assume that responsibility. What it did, was to refer the result of its preliminary ballot to the Council with a call for a vote.

However, you have not questioned the authority of the Committee, but in your letter of September third, raise two points of objection to the method adopted by it: (a) that the trial vote of the Executive Committee "cannot but interfere by suggestion with the unbiased selection that is the right of each member of the Council"; (b) "further, it does not appear that members of the Executive Committee, having expressed preferences, may not have as individuals the supplementary privilege of enforcing the selection."

The first objection (a) seemingly applies to any ballot or list of names presented to a voter, but the point here is, would the presentation of the Committee's list lead the members of *our* Council to vote against their convictions? That it would influence them to that extent is to me unthinkable.

As to (b), I do not follow you. The members of the Committee are members of the Council and so cannot be denied a vote at any election. As a rule, members of a nominating committee do not lose their right to vote by virtue of having expressed a preference.

As I see it, both the preceding objections would apply to any election in which a committee suggested names for consideration and are, therefore, objections to the accepted way of doing things. However, in your letter of September fourth you raise an entirely different point, *viz.*: "I wish to express a doubt that the Executive Committee fully polled would authorize such a palpable slight to the National Museum."

As to "fully polled," I can answer definitely; two-thirds of the Committee voted; their vote was decisive. Action upon this vote was warranted by custom.

Now as to the question of the National Museum; the fundamental point here is, as to whether *institutions* are to be represented in the divisions of the National Research Council. My understanding and that of the Committee is, that the principle of institutional representation was considered in the formation of the National Research Council, but rejected as impractical. Hence, it was our duty to consider research men only, regardless of their institutional and geographical antecedents. Institutional representation would call for no action by the Association; at least there would be no voting for delegates, since an individual would be a member of the division solely by virtue of his institutional status. I can assure you, therefore, that your interpretation of the ballot as a discrimination against the National Museum, and such other institu-

tions as did not find names of their officers upon the list, came as a surprise to the Committee. Further, we were pained to read the word "slight" in your letter. That is an ugly word and needs no definition to an American. I regret that you apply it to the members of the Committee as well as to me. I assure you that no member of the Committee had the least thought of "slighting" any person or museum.

Again, you may recall that you wrote me June twenty-third, stating that you could not think of taking the part of a delegate for reasons of health. The Committee had opportunity to know this and doubtless, like myself, accepted your decision with regret. I am sure that the Committee would have been glad to vote for you, had you left them free to do so. The one great sorrow this misunderstanding brings to us, is that you should be made unhappy at a time when the rewards and joys of a great and distinguished career should be yours. Yet, since you raised these questions, we had no choice but to proceed with their discussion. Please accept, therefore, this expression of our good will and our regret that you should have misinterpreted our actions.

Believe me,

Sincerely yours,

(Signed) CLARK WISSLER

PROF. W. H. HOLMES,
U. S. National Museum,
Washington, D. C.

ANTHROPOLOGICAL NOTES

MEETING OF THE RESEARCH COUNCIL

THE first meeting of the Division of Anthropology and Psychology, National Research Council, was held in Washington, October 20th. The membership of the Division is now as follows:—to serve until July 1, 1920, Franz Boas, A. Hrdlička, E. L. Thorndike, Walter D. Scott, Margaret F. Washburn, Clark Wissler; July 1, 1921, James R. Angell, Raymond Dodge, S. I. Franz, J. Walter Fewkes, P. E. Goddard, A. M. Tozzer; July 1, 1922, Roland B. Dixon, A. L. Kroeber, Berthold Laufer, C. E. Seashore, Lewis M. Terman, G. M. Whipple.

Dr. A. M. Tozzer was elected chairman of the Division for the current year and Dr. W. B. Bingham, vice-chairman. However, Dr. Tozzer declined to serve therefore the chairmanship passed automatically to Dr. Bingham. As organized the division is under the direction of a chairman, vice-chairman and an executive committee of which the preceding officers are members *ex officio*. The other members of the Executive Committee are: Franz Boas, J. Walter Fewkes, Walter D. Scott, and S. I. Franz.

THE ANNUAL MEETINGS

The annual meetings of the American Anthropological Association and of the American Folk-Lore Society will be held at the Peabody Museum, Cambridge, Massachusetts, December 29, 30, and 31.

The tentative programme is as follows:

Monday, Dec. 29:

- 9.00 A.M. Council meeting, A.A.A.
- 12.00 M. Council meeting, A.F.L.S.
- 1.00 P.M. Luncheon, Colonial Club.
- 2.00 P.M. Meeting for papers, A.A.A.
- 5.00 P.M. Tea (place to be announced later).
- 7.30 P.M. Dinner, Colonial Club.

Tuesday, Dec. 30:

- 9.00 A.M. Meeting for papers, A.A.A.
- 1.00 P.M. Luncheon, Colonial Club.
- 2.00 P.M. Annual meeting, Presidential Address and papers, A.F.L.S.

7.00 P.M. Buffet Supper, 7 Bryant St.

8.00 P.M. Council, A.A.A. 7 Bryant St.

8.30 P.M. Annual meeting, A.A.A. 7 Bryant St.

Wednesday, Dec. 31:

Trip by motor to Museums at Salem and Andover.

Dr. Wm. C. Mills made extensive mound excavations in the Flint Ridge district, Muskingum county, Ohio. One of the longest marches revealed an unusual condition, its interior being formed of a mass of flint nodules arranged around a rectangular opening at the center. On the floor of this enclosure was a single burial. With the skeleton were a number of unusual copper ornaments together with typical specimens of the Hopewell type. H. C. Shetrone, of the Ohio State Museum, and J. Arthur MacLean, of the Cleveland Museum of Art, assisted in the excavations.

The *Journal of the Bihar and Orissa Research Society*, published in Bankipore, India, contains many articles of interest to anthropologists. The third volume issued in 1917 (588 pp.) embodies two interesting studies from the pen of Sarat Chandra Roy on Social Organization of the Birhor and Kinship Organization of the Birhor, the latter giving a long list of relationship terms. Our totemists may be interested in the same author's, "A Note on Totemism Amongst the Asurs". C. W. Anderson contributes an article on Prehistoric Stone Implements found in the Singhbhum District, illustrated by nine plates. Besides, there is a great deal of good folklore material in this volume.

FROM the *Korrespondenz-Blatt* for 1918 we learn of the death of Dr. Ludwig Stieda, emeritus professor of anatomy at the University of Königsberg. Stieda was born in Riga in 1837, studied medicine at the universities of Dorpat, Giessen, Erlangen, and Vienna, graduated as Doctor of Medicine in 1861, and was associated with the University of Dorpat until 1885, when he was invited to the chair of anatomy and the directorship of the anatomical institute at Königsberg. Here he remained until his retirement in 1912. The last years of his life were spent in Giessen. Stieda contributed exhaustive surveys of Russian literature to the *Archiv für Anthropologie*.

By way of supplementing Dr. MacCurdy's report on the Academic Teaching of Anthropology, printed in the January-March issue of this journal, Professor T. Wingate Todd offers a course on Racial Anatomy in the School of Medicine of Western Reserve University, Cleveland, Ohio.

AN international review entitled *El Mexico Antiquo* has been established under the editorship of Herman Beyer. It will deal with the archaeology, ethnology, and linguistics of Mexico. The third number, dated September, 1919, contains an article by Dr. Walter Staub entitled "Some Data about the Pre-Hispanic and the Now Living Huastec Indians."

BELGIAN anthropologists have founded an *Association pour l'étude et l'enseignement des sciences anthropologique* with headquarters and a School (*Ecole libre d'Anthropologie*) at Liège. There are thirteen professors giving courses in physical anthropology, criminology, archaeology, ethnology, linguistics, etc. Diplomas are granted after two years' residence and the writing of a thesis meriting publication.

PAUL SÉBILLOT, the celebrated French folklorist, died in Paris on April 23, 1918. He was the author of numerous books, among them being a four-volume work on "Folk-lore de France."

L'Anthropologie announces the death of Dr. Léon Poutrin, well-known for his researches in the French Congo and on the Central African Pygmies. He was born on February 28, 1880 and died in the course of hospital service on November 20, 1918.

MR. ERNEST VOLK who was engaged for many years under the late Professor Putnam in archaeological work at Trenton, N. J. was fatally injured in an automobile accident September 15th.

CHARLES CONRAD ABBOTT, the author of "Primitive Industries," died July 27th. A notice of Dr. Abbott's work and writings will appear in a later issue.

PROFESSOR GUSTAF RETZINS, one of the pioneers in the science of physical anthropology, died July 21st, at Stockholm, Sweden. A review of the life of Professor Retzins will appear later.

MR. ARTHUR C. PARKER of the New York State Museum has been at work excavating the Seneca Indian village situated on Boughton Hill at Victor, New York, during the past summer. As the Boughton Hill site is that of an important Seneca stronghold destroyed by the French Governor Denonville the remains were very largely of the Colonial Contact period. Nevertheless, Mr. Parker and his assistants discovered a number of good specimens of Iroquoian pipes, a remarkably carved

bone comb, and some objects of wood and fabric, the latter being preserved in brass and copper kettles placed with the dead.

MR. ALANSON B. SKINNER of the Museum of the American Indian, Heye Foundation, New York City, spent the months of May and June in Wisconsin among the Menominee Indians where he obtained a set of phonograph records illustrating the songs and ritual of the medicine dance. He also, in association with Dr. S. A. Barrett of the Public Museum of the City of Milwaukee, opened 21 circular and linear mounds in Shawano county, Wisconsin. In some instances primary burials with accompaniments, usually pottery vessels, were found but many of the mounds, particularly the linear mounds, were found to contain only secondary burials such as bundles of bones or small deposits of charred human remains. The months of August and September Mr. Skinner spent in Jefferson county, New York, among the Thousand Islands of the St. Lawrence. He obtained a large series of bone implements from the Iroquoian sites of that region including an unusual number of bone objects decorated with incised chevron designs. The most important specimens obtained, however, were two fine examples of eastern Iroquoian pottery jars of ornate type discovered in crevices in the Talus at the foot of a bluff on the Indian river in the town of Theresa, New York. The latter part of the season was spent by Mr. Skinner in Cayuga county, New York where many objects were obtained from the village sites, and cemeteries of the Cayuga Indians of both the prehistoric and Jesuit Mission period were collected.

DR. S. A. BARRETT of the Public Museum of the City of Milwaukee has spent the summer in excavating the famous earthworks of Aztalan, Wisconsin, where a large series of very interesting material was obtained.

MR. D. A. CADZOW of the Museum of the American Indian, Heye Foundation, has returned from a trip to the Arctic where he secured an unusually complete collection of ethnological material from the Copper Eskimo of Coronation Gulf and the neighboring northern Athapascan tribes.

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THE MELANESIAN POSSESSIVES AND A STUDY IN METHOD

BY SIDNEY H. RAY

IN the *American Anthropologist* for July-September, 1918, Mr. A. M. Hocart has selected some of the Melanesian and Polynesian words which indicate possession as a "point of grammar" upon which to base a criticism of the two schools of enquirers who have used them as proofs and illustrations of their theories. One set of theorists, called by Mr. Hocart the "psychologists," regards the number and complexity of the Melanesian possessive words as the result of a defect in the power of abstraction. "The savage mind can conceive the possession of a leg, the possession of a house, the possession of a drink; it cannot conceive possession pure and simple." The second set of theorists regard these possessive words as evidence of culture-fusion brought about by "the accidents of history and the force of environment."

The first set of these theories has been discussed at length by Mr. Hocart in an article on the "Psychological Interpretation of Language."¹ The second is that propounded by Dr. Rivers in the "History of Melanesian Society."²

The present note is not intended to directly support or condemn either of these two theories. Yet it may be said that the writer is in general accord with Mr. Hocart's statement "that these savages, so called, are perfectly capable of expressing abstract ideas at least equal to that of possession in general."³ The present writer

¹ *British Journal of Psychology*, vol. v, pt. 3, Nov., 1912.

² W. H. Rivers, *The History of Melanesian Society*, vol. II.

³ *A Point of Grammar*, p. 267.

also believes that there is a fusion of cultures in Melanesia which may be measured by the languages, though not precisely in the way suggested by Dr. Rivers.

The notes which follow are intended to point out that the method chosen by Mr. Hocart in his criticism of the two theories tends to obscure and invalidate his explanation of the possessive words. In his desire to avoid prolixity he has confined his evidence to that provided mainly by the Fijian language, although the maxim *ex uno disce omnes* is totally inapplicable to linguistics, and the explanation of these words can only be deduced from a consideration of their use throughout the Pacific islands. When referring to the psychological theorists Mr. Hocart says:

The Melanesian and Polynesian possessives are not multiplied beyond need, but every one is indispensable.¹

He goes on to say,

In the examples selected by the psychologist to illustrate his theory one possessive would do as well as three or four; but we have no right to judge an idiom by a few examples picked out at random.²

And yet he has judged the Melanesian and Polynesian methods of expressing the idea of possession by examples from one language in each region. Also in criticizing the culture-fusion theory that the different methods of denoting possession indicate different cultures, he states that this theory "practically makes no attempt at explaining the form."³ Yet his own explanations do not, as will be shown later, fully account for the Melanesian forms of expressing possession. He says:

The test of a good theory is that it explains every detail naturally by its own resources, without calling to its aid vain suppositions to fill the gaps. A theory of these possessions should account both for their form and for all the peculiarities of their use.⁴

The present writer accepts this test for all that follows. The examples are drawn from more than thirty years' study of the linguistic problems of the Indo-Pacific region.

¹ *Loc. cit.*, p. 266.

² *Loc. cit.*, p. 266.

³ *Loc. cit.*, p. 268.

⁴ *Loc. cit.*, p. 268.

THE MELANESIAN POSSESSIVES

In Melanesian languages there are two methods of expressing possession:

1. A pronoun follows, or is suffixed to, the name of the object possessed.

2. A word or particle, called a possessive, precedes the name of the object possessed and this word has the pronoun following, or suffixed to, it. The form of the possessive varies according to the nature of the object possessed.

I repeat here the Fijian examples given by Mr. Hocart, and have added the ordinary pronouns in a separate column.

	1	2	3	4	5
1st per.-nggu	<i>nonggu</i>	<i>kenggu</i>	<i>menggu</i>	<i>koi au, au</i>	
2nd per.-mu	<i>nomu</i>	<i>kemu</i>	<i>memu</i>	<i>ko iko, ko</i>	
3rd per.-na	<i>nona</i>	<i>kena</i>	<i>mena</i>	<i>ko koya</i>	
1st inclus.-nda	<i>nonda</i>	<i>kenda</i>	<i>menda</i>	<i>koi kenda, enda</i>	
1st exclus.-ikeimami	<i>neimami</i>	<i>keimami</i>	<i>meimami</i>	<i>koi keimami, keimami</i>	
2nd.-muni	<i>nomuni</i>	<i>kemuni</i>	<i>memuni</i>	<i>koi kemuni, kemuni, ni</i>	
3rd.-ndra	<i>nondra</i>	<i>kendra</i>	<i>mendra</i>	<i>ko ira, ira, ra</i>	

The dialectical Fijian series with *ne* or *o* instead of *no*, and the Hawaiian (Polynesian) with *no*, *na*, and *o* are also quoted.

Fiji	2. <i>nenggu, nemu, nena</i> , etc.
	2. <i>nggou, omu, ona</i> , etc.
Hawaiian	2. <i>no'u, nou, nona</i> , etc.
	2. <i>na'u, nau, nana</i> , etc.
also	<i>o'u, ou, ona</i> , etc. ¹

The first series is, in Fijian, suffixed to nouns of relationship, parts of the body, and parts of things. The second series is used with things possessed or made use of. The third series is used with things destined for, or things to be eaten. The fourth series is used with things to be drunk.

THE SUFFIXED PRONOUN

The second, third, and fourth series are merely the first attached to monosyllabic particles instead of being stuck directly on to the

¹ *Loc. cit.*, p. 272.

noun.¹ The words in the first series are said to be not really possessive but personal pronouns. This is so far true, that in some Melanesian languages the ordinary personal pronouns which correspond to the Fijian in column 5 are used in the same way. Thus in Saa, Solomon islands, *ama-ku* "my father," but *poro ineu*, "my husband," and in Lau, Solomon islands, *te nau*, "my mother," *maa nau*, "my father." In these *ineu* and *nau* are the personal pronouns corresponding to the Fijian *au*.²

In Melanesian languages generally it is only in the singular number that the suffixed pronouns represented by the Fijian *-nggu*, *-mu*, *-na* differ from the personal pronouns used as subjects or objects of verbs. In the plural number the suffixed pronouns appear as shortened forms of the ordinary pronouns and thus there is often an identity in the pronoun used as suffix, and that used with the verb as in Mr. Hocart's example *yava-nda*, "our leg" and *nda lako*, "let us go." But this identity does not occur in the singular number where representatives of the Fiji *nggu*, *mu*, and *na* are never used as the subjects of verbs and are only used to denote possession.³

The suffixed pronoun is said to be a personal pronoun in apposition. When a Fijian says *yava-nda* he says in effect not "our leg" but "leg we."⁴ But in no Melanesian language does the pronoun in apposition come after its noun, unless it be the subject of a verb. Here are some examples from various places, the first word being the pronoun: Solomon islands: Florida, *igami na lei mane tarai*, "we, the teachers;" Ulawa, *iami mai inoni*, "we, the men;" Santa Cruz: *ningge lē Deni*, "we, people (of) Deni." Banks islands: *ikamam ira vatogo ngang*, "we, teachers." New Hebrides: Malo, *kamim mara Malo*, "we, men (of) Malo." New Guinea: Wedau, *taumi mai Wedau*, "you, belonging to Wedau."

¹ *Loc. cit.*, p. 272.

² It should be noted that the possessive idea expressed in *amaku* is not the same as that in *poro ineu*.

³ In languages where the verbal pronouns have some such forms as the Nguna *nae*, Aurora Is. *ni*, Tanna *in* (all New Hebrides) the process of abbreviation has resulted in an apparent likeness but never an identity with the suffix *na* or *n*.

⁴ *Loc. cit.*, p. 272.

Examples of noun and pronoun in apposition as subject of the verb:

Solomon islands: Florida, *Magutu*.¹ *igoe*² *to*³ *gilala*; Ysabel *Velepui*¹ *ko*² *gidhadha*;⁴ Saa *Alaha*¹ *ineu*!⁶ *ioe*² *ni*⁸ *o*² *manalainie*⁴ *taane*.⁹

New Hebrides: Nguna *Nawota*¹ *nigo*² *ku*³ *atae*⁴ *a*⁷; Tanna *Yema-asori*¹ *ik*² *ik*³ *erkuren*.⁴

New Guinea: Motu *Biagugu*¹ *e*!⁵ *oi*² *o*³ *dibamu*⁴; Wedau *Bada*¹ *tam*² *u*³ *nonori*.⁴

All these phrases translate the Fijian *O iko*², *saka*¹ *ko*² *sa*³ *kila*⁴, the English "Sir! (or chief) thou knowest." (1, Chief; 2, thou; 3, verb particle; 4, know; 5, oh; 6, my; 7, it; 8, demonstrative; 9, indeed.)

The statement that the possessive expressed by the suffixed pronoun implies partial identity¹ does not apply to Melanesian languages generally. It is true that a Fijian can never say *vale-na*, for "his house," because a house is never part of anybody and the pronoun is suffixed in Fijian only to words naming relationships, parts of the body or parts of things. But other Melanesians can say *vale-na*, e.g., Florida, Solomon islands, and the equivalent for "his house" shows in many Melanesian languages the suffixed pronoun. Thus Ysabel, *vathe-gna*; Banks islands, *ima-na*; Santo-Nogogu *imwo-na*. Many other possessions, such as beds, persons, weapons, and places are used with the suffixed pronouns in various languages, and these cannot possibly be regarded as implying partial identity of the possessor and the possessed.

If the suffixed pronoun, then, be not a pronoun in apposition, and not an expression of partial identity of the possessor and possessed, what is it? The answer is found in the common Melanesian syntax by which a word immediately following a noun qualifies it either as an adjective or a genitive. *Nda* in *yava-nda* is therefore either "leg our" or "leg of us," just as the Fijian *mata* "company" may be qualified by the noun *mbete* "priest"; in *a mata mbete*, "a priestly company;" or *su* "basket" may be qualified by *ika* "fish," in *a su ika* "a basket fished," i.e., supplied or filled with

¹ *Loc. cit.*, p. 270.

fish. The Fijian *a sangga¹ vatu²*, "a stone² jar"¹ is translated in the Solomon islands by the Florida *na popo vatu*, Mala, *hou atea hau*; Ysabel, *na tabili gahira*; all having the word for "stone" following its noun. It may be noted here that many languages which, unlike Fiji, may take a pronoun suffixed to words which are not names of relationships, still have the qualifying word or words following the noun, and the use of a prepositional or verbal phrase causes no difference in position. Compare the exact concordance in the succession of qualifying words in the following phrase.

- Fijian: *Na vua ni kau nga sa tu e loma ni were.*
The fruit of tree — stands in middle of garden.
- Ysabel: *Na sagaro i gai kori holagi-gna na taliao.*
The fruit of tree in its-middle the garden.
- Nguna: *Na wa ni na kau waina e ndoko mwaleopulo ni roara.*
The fruit of the tree that it stands-in middle of garden.
- Mota: *O woi tape langae alo vatitne utag.*
The fruit belonging-to tree in middle-of garden.

This insistence on the position of the qualifying word has a bearing on the position of the separate possessives in Melanesian and Polynesian, as will be seen later on.

THE POSSESSIVE PARTICLES

According to Mr. Hocart the first part of the possessive words *n-onngu*, *ne-nggu*, *ke-nggu*, *me-nggu* is "an article or a preposition."¹ He says "both answers are right, for in Melanesian and Polynesian the article and the preposition run into one another." It is not clear from the last statement whether he means that articles become prepositions or whether he means that articles are used preceding or combined with prepositions. The first does not appear in any collective view of the languages but the second, *i.e.*, the article preceding the word used as a preposition, is fairly common throughout Melanesia.

In Melanesian languages many prepositions are in their primary sense nouns. That they are so is shown by their use with the

¹ *Op. cit.*, p. 273.

article preceding or they may themselves like any other nouns be preceded by a preposition.¹

The prepositions which resemble the first part of the possessive words in Fijian are cited by Mr. Hocart. I quote them with some remarks on their distribution.

1. "*O* means 'of' throughout Polynesia." This is not found as a preposition meaning "of" in Melanesia. It may be represented by *u* in Ancityum in the words used as possessives, *u-nyak*, *u-nyum*, *o un*. In Tanna *o* means "to" or "for." The *a* of Polynesia meaning "of," is not found as a genitive preposition in Melanesia but is locative "in" or "at," and corresponds to the Fijian *e*. But *a* is found as a possessive in the New Hebrides (Nguna *a-ginau*, *a-ninggo*, *a-neana*) prefixed to the full pronouns and in San Cristoval as *a-gu*, *a-mu*, *a-na*. It is also in New Guinea, in Wedau *a-u*, *a-m*, *a-na*.

2. "*Ne* means 'of' in high Fijian before proper names, in Rotuman before common nouns." In Melanesia *ne* means "of" only in Ambrim. It is not used as a possessive in Melanesia except in Fijian. (Cf. 4, below.)

3. "*Ni* is 'of' in Fijian before common nouns." In the Solomon islands *ni* is also the preposition "of" and in the same region is also used as the stem of the possessive.

4. "*Na* and *no* mean 'of' in Hawaiian, Tahitian," etc. *Na* is found in Melanesia as the preposition "of" only in a few languages of the Solomons and in the Bismarck archipelago. In the New Hebrides it does not mean "of" except in Epi. As a possessive it is found only in Ulawa, Lakona of the Banks group, and in Epi, New Hebrides. Here it is probably the same as the Fijian *ne*. *No* is never a preposition in Melanesia but is found as a possessive in the Banks islands, Santa Cruz group, and the New Hebrides. It is not found in the Solomons.

5. "*Ke* in Fijian means 'for' before proper nouns. In certain dialects it also means 'to,' 'towards' before common nouns." *Ke* or *ge* does not appear among prepositions in Melanesia. But

¹ For examples, cf. Codrington, *Melanesian Languages*, pp. 151-155, and Sidney H. Ray, *Report of Cambridge Expedition to Torres Straits*, vol. III.

the Fijian *ke* probably represents the possessive *ga* (sometimes *ka*, or *a*) which is very common in Melanesia and is everywhere used exactly like the Fijian *ke*.

6. "*Ki* means 'to' in most Fijian dialects as in 'Tongan, Maori,' etc. In the New Hebrides the preposition *ki* or *gi* is instrumental. It is never found as a possessive.

7. The fourth series, *i.e.*, *menggu*, *memu*, *mena*, is said to be obscure and is "left out of consideration." This is in fact the least obscure of all these words, *me* being the Fijian equivalent of *ma* used as a possessive in the New Hebrides, Banks islands, and Bismarck archipelago.

It should be noted that all these prepositions are not found in the possessive words of Fiji and Polynesia. Those which seem identical with the particle forming the possessive are only four, *o* in Lau Fijian and Polynesian, *no* in Mbau Fijian and Polynesian; *ne* in Fijian and Rotuman, and *ke* in Fijian.

The Hawaiian possessives *o-na* or *a-na*, "of him;" *ko-na* or *ka-na*, "his;" *no-na* or *na-na*, "for him;" are also quoted as though prepositions of different meanings, though they differ only in syntactical use. It should have been noted also that *ko-na*, *ka-na*, are merely *o-na*, *a-na*, with the article *ke* prefixed to show that only one object is possessed. In other Polynesian languages the construction is the same although the article is different: thus

Samoan: *le* or *se* article: *lona*, *lana* or *sona*, *sana* his.

Tongan: *ae*, *ha*, *ko* article: *aena*, *haäna*, *hono*.

Maori: *te* article: *tona*, *tana* his.

The function of an article is to define a noun, to point it out or distinguish it as a noun, hence the presence of the article with the possessive word shows that it is in native thought a noun. The Fijian possessive words are also used with the article: *a nona* (or *mena*) *wai*, *a kena wai*, *a mena wai*, "his liquid," in Mbau.

The Melanesians have not supplied the want of a possessive pronoun by a prepositional phrase "of him," "for him," but have classified their possessions in various categories and used a general, non-particularized noun such as the English "possession" or

"chattel," "eatable" or "drink," which stands as a representative of its class. For clearness of speech this general noun requires definition and hence it is followed in the place of the adjective by an explanatory word or phrase. Mr. Hocart tries to explain a difficulty in his theory by a supposition.

The difficulty is that if these words "are really nothing but pronouns with prepositions they ought to occupy the same position in the sentence as nouns with prepositions," but "in Fijian and kindred tongues possessives do not behave like prepositions followed by pronouns or nouns."¹ This is explained by the supposition that "in the parent language of Polynesian and Melanesian the dependent noun or pronoun could stand either before or after the principal word."²

There is no difficulty if we regard the possessive words as nouns, and hence there is no necessity for a supposition. The Fijian sentences quoted are typical of Melanesian *A vale ne i Rasolo*, "the house of Rasolo;" *A nona vale*, "his house." In the first example the principal noun *a vale*, "a house" is explained, it is *ne i Rasolo* the "property of Rasolo." In the second example the principal noun *a nona*, "his property" is explained, it is a "house."

The examples from Hawaiian show no contradiction.

Ka hale o ke ali'i, "the house of the chief," i.e., "the chief's possession (is) a house."

Ko ke ali'i hale, "the chief's house," i.e., "the house (which is) the chief's property."

And with the pronouns:

Ka hale o makou, "the house of us," i.e., "our possession (is) a house."

Ko makou hale, "our house," i.e., "the house (is) our property."³

The position of the possessive word is entirely a matter of em-

¹ *Op. cit.*, p. 274.

² *Op. cit.*, p. 275.

³ Mr. Hocart's first two examples are wrongly quoted. (Cf. *Andrew's Grammar of the Hawaiian Language*, p. 34.) In the first he has *ka* for *ke* the article before *ali'i*. This is unimportant as the articles *ka* and *ke* are interchangeable. In the second the article with *ali'i* has changed places with the possessive and made an unmeaning phrase.

phasis. In Polynesian the predicate comes first in the sentence and is usually identified with the most emphatic word in the sentence. Cf. for example the Maori:

Noku te whare nui, "the large house is *mine* (*noku*)."

He whare nui toku, "mine is a large house (*he whare nui*)."

He nui toku whare, "my house is a large (*place*) (*nui*)."

If a house be enquired about, *Tehea whare?*, "which house?" the answer may be: *Te whare kowhatu*, "the stone house;" *te whare o kuri*, "*Kuri's* house," or, *he whare noku*, "a house *belonging to me*," with the words distinguishing *whare* following it. But if the query be: *Towai whare?*, "Whose house?" or *No wai tera whare?*, "Whose property is that house?" the answer may be: *No Kuri tera whare*, "that house is *Kuri's property*," or, *Ko toku whare tera*, "that house is *my property*," or, (as above). *Noku te whare*, "the house is *mine*." In these the ownership is the emphatic part of the sentence and so comes first.

In both Melanesian and Polynesian languages the possessive nouns have prepositions preceding them which would not be the case if they were themselves prepositions. Some examples are: Fijian: *na lewe ni nona vale*, "the people *of his* house;" *ki nona vale*, "to his house;" *e nona vale*, "in his house;" *kei na nona lewe*, "for his people." Banks islands: *ape non a vavakae*, "about his strength;" *alo nor o paito*, "in their shed;" *nan mom a lea*, "from thy law;" *mun mok o vavae*, "through my word." Maori: *nga hua o au mahi*, "the results (fruits) *of thy* labor;" *kei tona ringa*, "in his hand;" *e matauria ana ahau e aku*, "I am known *by mine*;" *i to ratou ropu*, "in their company."¹

The common use of the possessive in Melanesian languages without any other noun, equivalent to the English "mine," "thine," etc., when it may be subject or object of a verb is another evidence of its being actually a noun. Cf. Fijian: *erau na nonggu*, "*mine* are the two," "they two are *mine*;" *sa nonggun ga*, "it is *mine* only;" *sa nona na vale*, "the house is *his*." Banks islands: *ilone te namona*, "that will be *his*," *anona o lama*, "*his* is the sea."

¹ The prepositions are: Fijian, *ni*, *ki*, *e*; Banks islands, *ape*, *alo*, *nan*, *mun*; Maori, *o*, *kei*, *e*, *i*.

Another reason for regarding these words as primarily nouns and not prepositions is to be found in the number and variety of similarly used classificatory words in the languages of Melanesia and Micronesia. I note some among many languages, giving examples in the first person singular only.

Banks' islands: *nok o wose*, "my paddle;" *mok o vavae*, "my word;" *gak o nam*, "my yam (to eat);" *mak o pei*, "my water (to drink);" *o tanun anak*, "a man of mine, my man;" *tak i tasik*, "my mate my brother;" *pulak som*, "my money." (Suffix pronoun *-k*, "my.") Espiritu Santo: (Malo island) *noku tamalogi*, "my servant;" *gaku mbaigo*, "my breadfruit;" *maku tou*, "my sugar cane;" *bulaku ugai*, "my trees." (Suffix pronoun *-ku*, "my.") Tanna: *nuk senak*, "the yam my food," *nak uk*, "my food yam," *suk ui*, "my drink water." A coconut may be either *sabasak*, *i. e.*, my fruit, it has grown on a tree belonging to me, or I intend to plant it: *sanumak*, *i. e.*, my drink, as I intend to drink it: *senak*, *i. e.*, my food, as I intend to eat it: or *seiau*, my property that I may keep or dispose of as I choose. (Suffix pronoun *-ku* or *au*, my.) Iai (the Melanesian language of Uvea island in the Loyalty group) has more of these expressions than any other Melanesian language: *haok kumara*, "my food potato;" *anyik hele*, "my possession knife;" *belik wanu*, "my coconut (to drink);" *halek buaka*, "my chattel pig;" *ok buaka*, "my pig (carried as a burden);" *ik nyei*, *gak nyei*, "my field;" *dek gelhen*, "my path;" *tanguk tang*, "my bag;" *tabuk tap*, "my seat;" *umuk uma*, "my house," *umuk op*, "my cave;" *hwak hofuj*, "my saying." (Suffix pronoun *-k* "my.")

In Micronesian languages this classification by possessives is also common. Thus *a* is found indicating a simple possession in all the islands from the Carolines to the Gilbert group, and each language has various ways of classifying the objects possessed. In Ponape *na* with suffixed pronouns indicates an article specially valuable or closely connected with the possessor: *nai kapit*, "my knife;" *nai jokau*, "my kava;" but *ai paut*, "my wife." In other Micronesian languages the possessives are still more numerous and are used for food, drink, animal property, and houses or land. Some examples from Kusaie (Strong's island) appear thus: *lom sik*, "my house;"

met tumuk, "my husband;" *mwen nutig*, "my child;" *met kulanshap luk*, "my servant;" *nine kiuk*, "my mother;" *mutan kiuk*, "my wife." Some of these words though possessives only in Kusaie are elsewhere separate nouns. Thus *tumu* is the common *tama*, "father;" *met tumuk*, "my father man, my husband;" but *papa tumuk*, "my father." *Nutig* is the common *natuk*, "my child," and *kiu* shows the common word for the pandanus mat *kie*, here used of something to lie on, as *kulus kiuk*, "my bed."

In Micronesia this excess of classification is extended to other words, especially to demonstratives and numerals.

SURVIVALS AND POSSESSIVES

From the Hawaiian and Polynesian examples already given it is plain that a theory of survivals is not needed to explain the position of the possessives in Polynesian. Neither is it necessary to explain the Melanesian use, where the preceding possessive remains a noun and the following possessive tends to lose its distinctly nominal character and become identified with the preposition. Some notes follow on Mr. Hocart's "survivals."

The Lauan *a medha ona*, "the cause of it," "the reason why," is not fully explained,¹ but as the phrase is said to be "not a living usage," but "a solitary example, occurring in a set formula,"² it may belong to the same category as the language used in songs and invocations, which throughout Melanesia differs from the ordinary speech chiefly in variations of construction and the use of strange words.³

In Rotuma *ri on fata*, "house of him, this man," *on* is used with the personal noun *fa*, "man" instead of the preposition *ne* as in *hu ne oi*, "root of a tree." Before common nouns *on* means "his," *on ri*, "his house." The Rotuman language is such a mixture

¹ In the Lau dialect *medha* means "thing" as a *medha i ei*, "this thing." Cause is usually indicated by the preposition *i*, "at" (Mbau *e*); Lau: *i na medha i ei*, "at this thing, for this cause;" Mbau: *e na vuku ni ka ongo*, "at the knowledge of this thing," "because of this." The possessive may be used in Lau: *i na omudou tawa kila*, "at your not knowing, because ye know not."

² A. M. Hocart, *op. cit.*, p. 277.

³ Cf. Codrington. *Melanesian Languages*, p. 308; Sidney H. Ray, *Journal Anthropological Institute*, 1897, p. 436 ff; Calvert, *Fiji and the Fijians*, p. 98 ff.

of Melanesian and Polynesian that the two chief authorities on the languages¹ do not agree upon its classification. It is evidently corrupted by the imposition of a Polynesian dialect on a Melanesian (or *vice versa*) in comparatively recent times. For this reason its forms obviously cannot be used as examples of survival in Melanesian or Polynesian. The phrase *ri on fata* corresponds to the common Melanesian idiom, as, *e.g.*, Florida *na vale-na na tinoni*, "the house of the man," lit. the "house his the man," but Rotuman having no suffix pronoun has copied the idiom by using the Polynesian possessive, thus *ri on*, "house-his." With regard to the Eddystone island *na mani tana*, "his basket,"² compared with the Wallis island *ko tana fa'e*, "his mother," it cannot be said that the word *tana* has the same origin in each language. The Wallis island possessive word *tana* is the same as the Maori, etc., *tana*, Hawaiian *kana*, and is composed of *te*, article, *a* possessive and *na* pronoun. The Eddystone *tana* is probably formed by the suffix pronoun *na* from *ta*, the noun-preposition which is common in Ysabel, New Georgia, etc., as, *e.g.*, *tagna* in Ysabel *na manu tagna parako*, "the birds belonging to it, the air," or as *tanisa* in New Georgia *vetu tanisa*, "house belonging to him." The position of the possessives varies in the same region, as, *e.g.*, in New Georgia: *vetu tanisa* or *nana vetu*, "his house," *nggua vetu*, "my house," *mua vetu*, "thy house." The last two correspond to the *ninggua*, *nimua* of Ysabel and Florida which make the New Georgia and Eddystone island forms appear as abbreviations.

CULTURE FUSION

And now a final word as to the Culture Fusion theory. It is significant that the possessive words are most numerous in the southern New Hebrides where the ordinary vocabulary and grammar differ most from the common Melanesian. They are also numerous in the eastern Micronesian region where the vocabulary

¹ "The language can by no means be classed with those of the eastern Pacific, but must be ranked as Melanesian." Codrington, *Melanesian Languages*, p. 402. "Het Rotuma is klaarblijkelijk een Polynesisch dialect, in spijt van de bewering van Codrington." Kern. Bijdr. t.d. Taal-, Land-, en Kunde se Volg. II. Klankverwisseling in de Maleisch-Polynesische Talen.

² *Loc. cit.*, p. 277.

varies greatly. But in the Melanesian islands nearest to Polynesia, in Polynesia itself, and in New Guinea, that is, in the islands nearest to the Indonesian region, and where the racial type approximates most to the Indonesian, the possessive words are few. In Indonesia itself they appear only in Malagasy, eastern Borneo, and a few other places. Are these words then, the survival of a linguistic habit of the primitive Melanesians, or a relic of the speech of some earlier population which occupied the islands before the Melanesians?

There are traces of the tendency to noun classification in several of the primitive languages of the Indo-Pacific region.¹ In the only region outside New Guinea where these languages have been able to resist the Melanesian and retain their own grammar, it is noteworthy that one group, that of southeast Bougainville elaborates the classification of nouns to a very great extent.² For example, in Nasioi, one of these languages, nouns are divided into more than twenty classes by a suffixed article, and the numerals, demonstratives, adjectives, and possessives have to agree with them. Thus: *pava*, "house;" *pava nava*, "house one;" *pavanava nkanava*, "house my;" *pava nava dakana*, "house they." But it is: *minto nkana*, "work my;" *mintong dakana*, "work they;" and *mpana vang*, "bow my;" and so on, the possessive changing its termination in concord with the noun.

In this connection it might be possible to regard the Melanesian possessives as survivals of a Prae-Melanesian habit of classifying things possessed. But the use of the general noun before the name of the possession, as a possessive, or its use after the noun, where it tends to become a preposition cannot be regarded as survivals but belong to the common and widespread usage of Melanesian speech.

ILFORD, ENGLAND

¹ *Reports of Cambridge Expedition to Torres Straits*, vol. III, pp. 28, 58, 310, 339, 524.

² *Cf. Anthropos*, vol. VII, 1912.

A BUFFALO SWEATLODGE

By GEORGE BIRD GRINNELL

IN September, 1906, I witnessed the ceremonial construction of a sweathouse,¹ which preceded the unwrapping of *İssİ wūn*, the sacred hat of the Cheyenne, by Wounded Eye, its keeper.

The ceremony was spoken of as a buffalo ceremony. Wounded Eye and his wife, who took the chief parts, represented the buffalo bull and cow, and a little girl, eight or ten years old, daughter of Squint Eye, represented the buffalo calf—a yellow calf of the past spring. The little girl was ill—suffering from tuberculosis—and the ceremony was performed that she might be restored to health.² The sweatlodge was built in the Rosebud bottom, not far from the lodge of Wounded Eye, in which the sacred hat was kept. Its construction occupied practically the whole day, about nine or ten hours.

The various ceremonial acts were performed with great deliberation and much detail, and with what seems, when written out, an endless amount of repetition. Something like twenty distinct and elaborate operations were undertaken and completed before the sweathouse was ready for the use for which it was erected.

¹ ORDER OF OPERATIONS IN BUILDING THIS SWEATLODGE

- | | |
|---|--|
| 1. Excavating for hot stones. | 12. Laying up the wood for fire. |
| 2. Making the earth pile. | 13. Painting the stones for heating. |
| 3. Digging holes for the frame. | 14. Placing the stones for heating. |
| 4. Planting the willows for frame. | 15. Taking the pipe to the sweatlodge. |
| 5. Completing the frame. | 16. Bringing offerings to sweatlodge. |
| 6. Painting the frame. | 17. Preparing place for the pipe. |
| 7. Placing the buffalo skull in position. | 18. Cleaning the straight pipe before skull. |
| 8. Painting the buffalo skull. | 19. The sacrifice to the four directions,
Nİv' stān i wó. |
| 9. Covering the sweatlodge. | 20. Lighting the fire for the stones. |
| 10. Spreading the sage stem floor covering. | 21. Preparing for the sweat. |
| 11. Painting the wood for fire. | |

² She lived for about three years after these ceremonies and then died of tuberculosis. At her request her little dog and her saddle pony were killed at her grave, so that they might go with her.

Among the Cheyenne the mystery man, or priest, who has charge of an important ceremony, does not himself always—perhaps not even often—actually carry out the operations of the ceremony which is under his charge. In connection with each part of the ceremony he performs some act which stands for or represents the operation that is really to be done, and then the actual operation is, or may be, performed by assistants, who, themselves knowing what the ritual requires, complete the operation for which the priest is responsible and which he himself has ceremonially performed.

Many or most solemn, mysterious or religious ceremonies are preceded by formal acts which appear to have the purpose of purification and suggest the same object that is attained by the burning of sweet grass or sweet pine, or the wiping off the body or a part of it by a wisp of white sage. The purpose of such acts is in part protective.

Tied to the corner of the buffalo robe he wears, the presiding priest usually has a little piece of sweet root—the plant from which the Cheyenne Culture Hero's name is taken, and into whose shape he is said to have transformed himself. When about to perform some important or solemn act, as the taking in his hands a ceremonial object, or applying sacred paint, the priest bites off a bit of the sweet root, chews it fine and placing his hands together, palms upward, fingers extending to the front, blows this finely divided root at five points on the palms—the base of the left thumb, base of the left forefinger, base of the right forefinger, base of the right thumb, and then at the point where the hands come together, about halfway from the tip of little finger to the wrist; in other words, in the four directions and in the middle. Then rubbing the palms together, he passes the right hand over the right leg from ankle to thigh, the left hand over the right arm from wrist to shoulder, the right hand over the left arm from shoulder to wrist, and the left hand over the left leg from hip to ankle. The two hands, palms down and fingers pointing backward, are then placed on the head and moved apart from the middle line down over the sides of the head and ears. Sometimes after doing this the hands are rested on the chest, the right hand usually above the left. In

the same way the priest, to prepare others for some solemn act, may blow on their hands and they then make the motions.

Sweet root may not always be available and the motions are frequently made without its use and consist merely of holding the hands in the proper position, blowing at the required points and passing the hands over legs, arms, and head. These motions so often repeated will be spoken of as the ceremonial motions.

The mysterious significance of the sweatlodge is hidden from most of us and in fact much of it has probably been forgotten even by those most concerned in the important ceremony. We may feel sure, however, that almost everything connected with the construction of the sweatlodge and with its use has a meaning, if only this could be learned. Left Hand Bull, an aged priest, now dead, gave Mr. R. Petter, whose knowledge of Cheyenne matters is so great, interesting hints on the symbolism of some of these matters. It is believed that the sun, shining for many years on the wood which is used in the fire to heat the stones for the sweatlodge, has imparted to that wood much of its power and life. The fire as it heats the stones, transmits to them the sun's power which has been stored up in the wood. When these hot stones are brought into the sweatlodge and water is sprinkled on them, the vapor given off from the hot stones carries with it this sun power which envelops and is inhaled by those who sit in the sweatlodge. The vapor thus reaches every part of the individual, within and without. It is even felt that the fire in which the stones are heated represents the sun as a center of heat. The skull of the buffalo bull, representing food and also generative power and the path from it into the sweatlodge, and the path through the fire into the sweatlodge, all symbolize the life producing power of the sun. In fact, fire and the burning of vegetable substances have an important part in all Cheyenne ceremonies. The burning of fragrant herbs—as sweet grass, sweet pine—is done in order to set free certain wholesome plant influences which have a medicinal as well as a purifying effect on whatever is held in the smoke which rises. These helpful influences are from the sun, which has caused these plants to grow.¹

¹ I believe this thought to be common to other plains tribes and it probably has a

Like many other spiritual beliefs this is hard to define but the general thought is as here expressed.

In the Rosebud bottom facing east, in a little grassy meadow sat side by side a line of five women and a little girl and four men. At the north end of the line sat four women, then the little girl, and south of her, another woman, Wounded Eye's wife, and then four men.

A short distance south and a little east of the line Wounded Eye sat on the ground. He was naked except for moccasins and breech-clout, painted red all over his body, with a black crescent on his right shoulderblade, narrow black rings about ankles and wrists, a black horizontal line over the forehead, and a vertical line down the middle of the face over the nose to chin. There was a black disc on each cheek before and below the ear and a black tear mark below each eye. Just behind and to the south of where Wounded Eye was sitting was a small fire built by Bull Thigh.

Wounded Eye's wife was naked to the waist, red painted over her whole body, with a white crescent just within the right shoulderblade and a white disc representing the sun in front of each ear. South of this woman sat Wolf Chief, the instructor, wearing a buffalo robe, hair side out. The little girl was naked to the waist, as was also the wife and helper of the instructor—called the instructress. The first operation was the preparation of the excavation to receive the heated stones for the sweatlodge.

The wife of Wounded Eye, Wounded Eye, the instructress, and the little girl, stood in front of Wolf Chief, the instructor, who blew ceremonially on the hands of the four who made the ceremonial motions, and then the four, with four motions, grasped a new axe, carried it, the head directed forward, about twenty steps to the east and then very slowly and with four motions, the blade was lowered to the ground and a line in the sod was cut from north to south on the east side of the place where the hot stones were to be placed. This done they walked around this place west, north, east, and south to the south end of the line just cut, and with four motions

part in the sacredness of smoking. Hints of the feeling are often found in the tales, in which persons are advised to offer the smoke of tobacco to the great powers because it is pleasant to them.

lowering the axe to the ground, with four motions cut a line of sod from east to west at right angles to the first line. Again, they walked around the place and when they reached the end of the line last cut they ceremonially cut a north and south line on the west side, and then having again walked around the place they cut the east and west line on the north side, and walked south and west and returned to their places in the line and sat down. A man with an axe proceeded to complete the lines that they had ceremonially cut and divided the rectangle of sod into four pieces by lines running north and south and east and west.

A man approached from the stream on the north side, bringing an armful of long willow twigs, to be used to form the frame of the sweathouse, and at the same time another man approached from the south carrying in his arms a bundle of stems of white sage.

After the ceremonial cutting of the sod, there was a long wait. At length the same four individuals, after the ceremonial motions had been made, set out and marched around on the north and to the east of the place that was being prepared and there the women very carefully and reverently removed from the hole the pieces of loosened sod and earth. Wounded Eye, the instructress, and the little girl placed their hands on that of the wife of Wounded Eye and guided her hand with four motions toward the piece of sod or the handful of earth which she picked up. A buffalo robe had been brought up and spread on the ground east of the hole and on this the four pieces of sod and four handfuls of earth were placed. This completed the ceremonial digging. The four individuals returned to their places in the line and a man, without further ceremony, completed the rectangular hole, piling the earth on the robe. When this had been done, Wounded Eye, his wife, and the instructress performed the ceremonial motions, went out around the hole on the north, approached the robe from the same side, lifted its border and bent it over the earth, and let it drop back. This was repeated at the east, south, and west side of the robe. After this the three grasped the edge of the robe on the side away from the hole—on the east—and dragged the robe over the ground about twenty yards a little south of east, where it was tipped up and the earth emptied in a pile. They then returned to their places.

A man brought a wisp of white sage to Wolf Chief's wife who passed it ceremonially over the child's head from in front backward, then over the breast, belly, back, and shoulders, and the left side and the top of the head. The child then rose and backing out of the line went to the camp.

During these ceremonies a man had been engaged in trimming the willows for the sweatlodge frame. He cut off from the main stems all the twigs and branches, except the last slender leafy stems at the extreme end of each shoot, which would be used to tie the ends of the willows together. From time to time, smoking took place, the men using an ordinary red stone pipe. After lighting, it was pointed as usual to the four directions, then to the sweatlodge and last up and down.

From a distance American Horse brought on his back, with a rope, two loads of wood for the fire to be used in heating the stones, while two young men brought stones for the sweatlodge. Of these there were three large back loads.

When all the earth had been removed from the excavation that was to hold the hot stones, it was piled with the other earth that had come from the same place. The location of the pile did not seem quite satisfactory, and presently it was moved a little to make it stand almost exactly southeast of the sweatlodge.

A man brought up a buffalo skull and placed it on its face, nose pointing southeast on the ground southeast of the earth pile. Wounded Eye's wife rose and offered her hands to the instructor. The ceremonial motions were performed, and the wife, with the instructress and Wounded Eye, carrying a four foot stick, walked from the line northeast, and east, passing north of where the sweatlodge was to stand, and then south, around the earth pile and the skull and back near to the excavation for the stones. Here Wounded Eye's wife with the stick touched the ground on the south side. They then walked around the excavation, southeast around the skull and earth pile and back to the hole for the stones, where with the stick she touched the ground on the west side. Repeating this a third time she touched the ground on the east side and at the fourth round touched the ground on the north side, and

finally, at a fifth round, with four motions, she touched the ground in the center, within the hole. The stick represented, and probably was, a root digger.

The stick was then carried back and placed on the ground south of the earth pile and the skull, and the three returned to their places in the line.

This operation was the ceremonial digging of the holes in which the willow shoots for the sweatlodge frame were to be planted, and with iron bars two men began to make the holes without ceremony.

Soon the man who had brought up and was preparing the willow shoots carried five of these from the pile near to where the sweatlodge was to stand and placed them on the ground with the butts toward the hole for the hot stones. The ceremonial motions were performed on the hands of Wounded Eye's wife and the same three people, instructress, wife, and Wounded Eye, in that order—walked out north, east, south around the place for the sweatlodge and the earth pile and skull and back to the southernmost of the five willow shoots there lying on the ground. With four motions the wife picked up that willow shoot, they walked around the sweatlodge and the earth pile and skull and back to the sweatlodge, and placed the willow on the ground with its butt close to one of the holes dug with a bar on the east side of the sweatlodge. The same thing was done with a second willow, which was taken up with four motions and placed on the ground by one of the holes to the westward. In the same way a third willow was put down on the west side of the sweatlodge, but in this case the four motions were not made before lifting it. In the case of the next willow the instructress took Wounded Eye's hand with four motions before grasping it, and caused him to make four motions before taking hold of the willow and four motions before lifting it up. Then the willow, after the usual passage around sweatlodge and earth pile, was placed at one of the holes to the east.

The instructress now led Wounded Eye and his wife to Wolf Chief, and after the ceremonial motions had been made they walked back to the sweathouse and the wife with four motions lifted up

the first willow—the southernmost of the two to the east—and planted it by thrusting its butt into the hole already made. The first willow was inserted to the sunrise. The second was planted in the same way to the west, to the sunset. Then another was put in on the west, to the sunset and the next one to the east to the sunrise. The three now walked southeast about the earth pile and skull and back to the sweatlodge, and with four lifting motions took up the fifth willow, carried it around the sweatlodge and the earth pile and with four motions planted it at the south border of the sweatlodge. They then walked around the sweatlodge and the earth pile and returned to their places. The two willows to the southeast represented the door. Wounded Eye's wife planted the southerly willow on east and west and Wounded Eye the northerly willows on west and east, and the three persons the willow to the south.

The remaining willows were now planted by assistants without ceremony. The shoots were left standing upright.

The instructress stood before Wolf Chief and the ceremonial motions were performed. The three persons walked around to the north around the sweatlodge and skull and earth pile, returned to the east willows and bent them in toward the excavation and then walked around to the two west willows and bent them in toward the east willows, and then around the sweatlodge and the earth pile and back to the south willow and bent it in and over the ground covered by the sweatlodge and then walked around the sweatlodge and earth pile and returned to their places. The two assistants who were doing the non-ceremonial work stood before Wolf Chief and performed the ceremonial motions. They walked to the sweatlodge and brought together first the east and west willows standing to the south and fastened them together and then the east and west willows to the north and fastened them together, and then continued the work by planting in the ground and tying them the remaining willows until they had completed the sweatlodge frame. While working, these two men received frequent directions from Wounded Eye. The ends of the willows are tied together with sinews, of which Old Bull and Three Fingers held several strands in the mouth.

There were sixteen willows. The two assistants when their work was done sat on the ground to the right of Wounded Eye.

In a short time the instructress, Wounded Eye, and wife presented themselves before the instructor; the usual ceremony was performed and the three went around to the east side of the sweatlodge. Wounded Eye carried a sack of black paint and his wife one of red paint. The three sat down on the southeast side of the sweatlodge, where the instructress painted the woman's hands with red paint. Wounded Eye's wife rubbed her hands over the southerly of the two eastern willows, painting from below upward. Passing around the sweatlodge she painted the southernmost of the two westerly willows, the one meeting that just painted on the east side. In the same way Wounded Eye with black paint painted the northernmost of the two westerly willows and then passing around to the north the northernmost of the two easterly willows. When this painting was completed the three walked from the sweatlodge around the earth pile and back to the sweatlodge, where the wife, with four motions painted the southerly willow red, while Wounded Eye walked around west and north and painted the northerly one black. Then without ceremony the wife painted all the willows on the south side red, and Wounded Eye painted black all those on the north side. The instructress stood off to one side and watched the operation. Wounded Eye's wife wore moccasins and about her waist were belted two blankets, reaching to the knees. When the painting was completed the three walked around the sweatlodge and the earth pile and returned to their places in the line.

The instructress, Wounded Eye and his wife, who now wore a buffalo robe, stood before the instructor and the ceremonial motions were performed. The three walked about the sweatlodge and to the skull, which the instructress very slowly and carefully turned over so that it was right side up. The wife and Wounded Eye passed around the instructress from left to right and the instructress and the man took the wife's hands and very slowly and with four motions caused her to grasp the skull by the base of the horns. With four motions it was lifted and very slowly and reverently moved forward over the earth pile, and with four motions deposited

on the northwestern side of the earth pile, the nose pointing to the sweatlodge. The instructress walked out in front of it and looked at it, to see if its position was correct, and after a pause, the wife walked to her side and Wounded Eye came up to the side of his wife, who thus stood between the two. They grasped her hands, and with four motions caused her to move a corner of her robe—representing the buffalo's left forefoot—with four motions, twice down on each side of the middle line of the face and once down the middle line. They then returned to their places in the line. Meantime, a pile of robes had been spread on the ground south of the sweatlodge.

The three presented themselves for the ceremony, and when it was over, walked around the sweatlodge, to and around the skull and back to the pile of robes. With four motions they picked up a robe and carried it around the sweatlodge and skull back to the door of the sweatlodge and put it down there. They repeated this, carrying a second to the west side and leaving it, and again a third to the west side north of the previous one, and leaving it, and putting another on the ground beside the northernmost of the easterly willows, and still another opposite the more southerly eastern willow. When the last robe was to be taken up the instructress held Wounded Eye's hands and caused him to make four motions before taking it up. This robe was put down to the south of the easterly ones, about at the south willow. Then they returned around the sweatlodge and the skull to their places.

Again rising, they stood before Wolf Chief, the ceremony was performed, and they walked out, and faced the sweatlodge, looking northeast, and stood there praying, and then passed around the sweatlodge to the robe opposite the more southerly of the easterly willows, picked it up from the ground and placed it the long way horizontally against the willows of the sweatlodge. They did this with all the others in order, except the westernmost of all, which they passed by. Afterward Wounded Eye took his wife's hand, caused her to grasp and take up with four motions this robe and to carry it around the sweatlodge, then to the east of the skull, pass it the long way over the skull, take it to the door of the sweat-

lodge, pass it into the hole above the door, take it out by the door, and finally spread it over the frame. They passed around the sweatlodge and skull and returned to their places. This ceremonial covering was very imperfectly done and was finished by the assistants, who by means of quilts and wagon sheets completed the covering, working from the east to south, to west, to north, and to east. Wounded Eye took a pipe to his wife and went to the fire and brought a coal to her in a willow hoop. She smoked.

After the two assistants had presented themselves to the instructor and performed the ceremonial motions, they went to the pile of sage stems and began to carry them to the sweatlodge, one going directly to the south side of the door, the other passing around behind the sweatlodge, for the door of the sweatlodge might not be crossed. Wounded Eye rose from his place and went over to the door, following Old Bull who entered the sweatlodge.

Wounded Eye went in after him to direct the spreading of the sage on the floor. Three Fingers also entered. Wounded Eye came out, walked to and around the skull and returned to his place. By this time all the sage had been taken into the sweatlodge and was being spread on the ground.

Presently, Old Bull left the sweatlodge and went to the instructor, who, taking a bite of the root, went through the ceremonial formula. After Old Bull had performed the motions he went to the pile of firewood, took a number of sticks and carried them to a point about ten paces from the door of the sweatlodge and left them there. The instructress, Wounded Eye, and his wife, went to the instructor and the ceremonial motions were performed. The wife carried a sack of red paint and Wounded Eye one of black paint. In single file and in the usual order they walked around the sweatlodge and skull and to and around the pile of firewood. The instructress, with four motions, put on the hand of the wife four pinches of paint, and the wife painted a stick of wood red. Then Wounded Eye painted a stick black. They did this from the east and again from the south, and then walked around the wood and returned to the instructor, who again went through the ceremonial motions. The three walked around the wood on the north side and

from the east side with four motions picked up a stick, which they carried around the wood and placed on the ground on the south side. Walking on around the wood each picked up another stick and carried it once and a half around the wood and put it down on the west side. They took a stick from the south, carried it around the wood and put it down on the north side; took another from the southeast, carried it around two and one half times and put it down on the northeast side; took one from the east and put it down on the west side, walked around the wood and back to their places.

Old Bull now began to lay up the fire without ceremony.

When the wood was laid up he went to the instructor, who performed the ceremonial motions, and Old Bull, going to the pile of stones, carried one after another, five stones over to the laid-up wood, and slowly and carefully put them on the ground on the south side of the wood.

The instructress, Wounded Eye and his wife went to the instructor, the ceremonial motions were performed, and they went to the stones to paint them. The instructress put paint on the hands, they approached their hands to the stones very slowly with four motions, and then seemed to grasp them, applying the paint. They faced northeast, then walked about the laid-up wood and returned to the instructor, who performed the ceremonial motions with the two women, but Wounded Eye blew on his hands himself. Again, they walked around the fire to the stones, approaching them from the southeast, with four motions picked up a stone, carried it about the fire and put it on the wood from the northeast. Keeping on around the fire they picked up another stone and put it on the wood from the south. Taking up another they walked about the fire and put it on from the southeast and another was put on from the west, always walking around the fire. Another was put down from the southwest with four motions.

Old Bull presented himself to the instructor and the ceremonial operations were repeated. He and Three Fingers carried over the rest of the stones and piled them on the wood with the stones that had been ceremonially placed. They then carried over the rest of the wood and piled it over the stones.

Wounded Eye's wife and the instructor rose from their sitting position, drew their robes about them, and standing on the knees, as the woman held out her hands to him, the ceremonial motions were performed and he handed her a pipe which she carried to the sweatlodge, he following her. Both entered and a few moments later most of those in the line followed and entered the sweatlodge. A little later three women were called up by Bull Thigh and the covering of the sweatlodge on the east was raised.

From the camp women came, carrying backloads of presents—quilts, parfleches, calico dresses, a gun. The coverings of the sweatlodge were now still further raised and some of the women on the outside put their heads into the sweatlodge. Praying and singing were heard in which the women joined. The songs were in a minor key and had in them a suggestion of mourning. After the songs and prayers had ended the women withdrew and Wounded Eye's wife came out. The presents were spread over the sweatlodge—many long pieces of calico reaching over from the ground on one side to that on the other. Over these were spread quilts and blankets, while the parfleches were put about the ground close about the sweatlodge.

After an hour Wounded Eye left the sweatlodge and a few minutes later his wife entered it, but at the door she dropped her blanket—exposing a short gray blanket, doubled about her waist and reaching to her knees—and about each thigh as close as possible to the body she tied a protective string. Then she put about her waist the outer blanket, which came down a little below the knees, and entered the sweatlodge. Five or six women now went to the sweatlodge; the coverings near the door were raised and praying and singing were again heard. After half or three-quarters of an hour the women left the sweatlodge, Wounded Eye's wife came out and walked around the skull and to her place, taking off the protective strings as she walked. They seemed about four feet long. Women were sent for food, which was brought halfway from the sitting line to the sweatlodge and left there. Wounded Eye's wife and the instructress were called to the door of the sweatlodge and stood there for a time. Someone was conversing with

them. Then they walked from the sweatlodge door to the nose of the buffalo skull, knelt in front of it and smoothed a circular space on the ground on which to put down the pipe, and then returned to their places in the line.

Wounded Eye's wife went to the door of the sweatlodge and there received a straight pipe which she carried to the skull and standing in front of it, cleaned the pipe, emptying the ashes on the smoothed place before the nose. She walked around the skull and returned to her place in the line. Much food was brought up and left near the sweatlodge by women who hitherto had not appeared. A little later the food was handed in. All the persons in the line now went over to the sweatlodge to pray, and prayers and songs were heard. After a considerable time the women left the sweatlodge and finally Wounded Eye's wife emerged, walked south around the skull and returned to her place in the line.

After a time during which the men smoked, Wounded Eye's wife left her place in the line, walked around the sweatlodge, received the straight pipe, took it to the skull, cleaned it there and emptied the ashes on the smooth place before the nose, walked around the skull, returned the pipe to the door of the sweatlodge and then went back to her place.

Wounded Eye now emerged from the sweatlodge and made the ceremonial sacrifice to the four directions, *ni'v stän i vo'*. The first offering was around the sweatlodge, a bit of meat being sacrificed to each of the four directions in the usual order and the fifth piece of meat placed on top of the sweatlodge. He repeated this about the laid-up fire, placing the last sacrifice on top of the pile of sticks and made offerings about the place where the pipe had been cleaned—which represented the earth—and about the skull—to the buffalo—touching the ground in the four directions, and leaving the last sacrifice in front of the buffalo's nose. A sacrifice was made from each dish of food, and in cases where this was fluid the sacrifice was offered by dipping into the food a sprig of sage, and touching the ground with it in the four directions and in the center. After the required sacrifices had been made Wounded Eye walked around the sweatlodge and entered it from the south side.

Food was now distributed and by various women was taken to each of the groups of people sitting about. The fire to heat the stones had not yet been lighted. The instructress caused the wife to take a brand from the burning fire and approaching the unlighted pile to hold the brand toward it at the east, south, west and north, and then over the top. The brand was lowered toward the top of the pile four times. Then the women walked around the earth pile and returned to their places. The fire having thus been ceremonially lighted, Wounded Eye went to the stream and returning with a bunch of rye grass, held this in the actual fire till it flamed and lighted the pile of wood for the stones, blowing the new fire through a pipe stem which he afterward handed to Bull Thigh. By this time the people who had received the food and the presents had dispersed and only the instructress, Wounded Eye's wife and a woman and child remained sitting in the line. Wounded Eye's wife walked around the sweatlodge to the door, took the pipe and cleaned it before the bull's skull, and presently the men came out of the sweatlodge and dispersed, only Wounded Eye, Bull Thigh, and another remaining by the sweatlodge. Presently, the men returned, some wearing only a blanket and others trousers. They removed their clothing on the north side of the sweatlodge and one by one entered it not long after the sun had set.

The sweatlodge had been built with due ceremony and they were now about to take their sweat. The sacred hat is said to have been unwrapped later in the night.

The songs sung in this sweatlodge are the songs belonging to the buffalo man, and, as already remarked, the chief actors represent a buffalo bull, cow, and calf.

NEW YORK CITY

PREHISTORIC PORTO RICAN CERAMICS

BY ADOLFO DE HOSTOS

IT is well known that Porto Rico, or rather *Borinquen*, to give its Indian name, was in the polished stone stage at the time of the discovery. Both history and archaeology have furnished ample evidence in support of this affirmation.

Like most peoples of the same degree of culture, the aborigines of Porto Rico knew and practised the art of pottery-making. They were agriculturists and fishermen, rather than hunters and warriors. They cooked some of their food, and they used vessels of baked clay for cooking, serving food, carrying water, and other utilitarian purposes. But there are good reasons for believing that ceramic objects had an important place also in the ceremonial and sacrificial paraphernalia used in the strange rites of their primitive religion.

In aboriginal life, every new art is based upon a certain necessity—admitting, by the way, that personal adornment is one of the human necessities. So the potter's art came to assist the native in the satisfaction of some of his bodily needs, until by a gradual and slow process, the suggestion of religious ideas found ready expression in the great plasticity of clay.

By a careful study of potsherds and other remains of the potter's industry which have been collected in Porto Rico, the writer has suspected, from the very beginning, that there is a certain relation between the quality of these specimens and the object or purpose for which they were intended. Many of the cruder and more grotesque sherds very often correspond to household and kitchen ware, while many of the finest specimens—exhibiting clear proofs of refinement in the art—were given to religious, decorative or, to us, unknown uses.

Leaving aside the accounts of Las Casas, Oviedo, Herrera and other historians of the discovery and colonization of the West Indies, the study of prehistoric ceramics from Porto Rico, as it

has been conducted by the author, in shell-heaps, kitchen-middens and other archaeological sites, has convinced him that the tribes which lived on or near the coast led a sedentary life, that they cooked some of their food, and, at least, that they were bread-eaters, cassava-bread eaters.

The principal fact, which indicates a continuous, uninterrupted aboriginal habitation of these sites during generations, is the relation

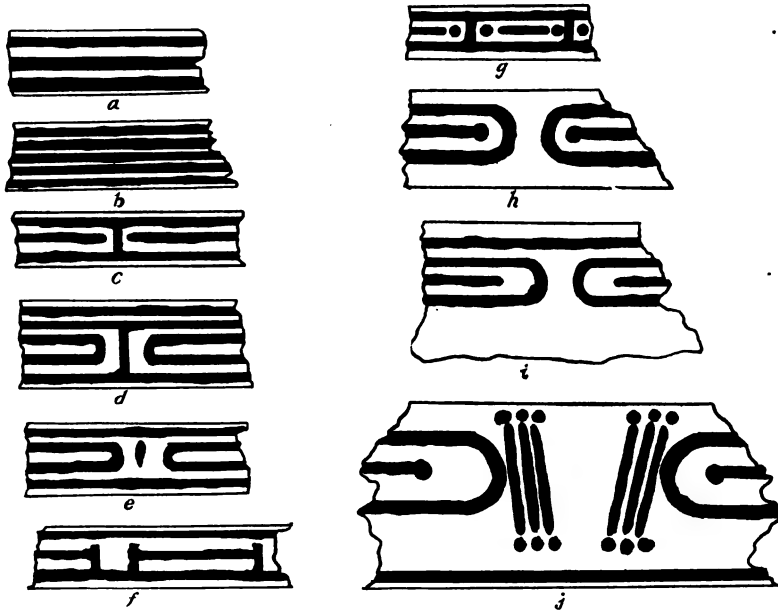


FIG. 41.—*a-i*, Elements of incised decoration on clay dishes, from the Joyua shell-heap, western coast of Porto Rico; *i*, is a specimen from Santo Domingo, W. I.

between depth and the development of the industrial arts, as shown in the quality of the relics found. The deeper the layer, the lower the quality. On or very near the surface, beautiful, painted, polished and sometimes lustrous ware shows the achievement of long, persistent effort. At the bottom, eight or ten feet below the surface, the rudest, most primitive specimens are found. As there seem to be no gaps between the successive layers—gaps which would show a discontinuance of progressive effort—the inference is made that such a place had been occupied continuously, that the

inhabitants were a sedentary, not a nomadic people. It is very doubtful if such an elaborate symbolic decoration in relief, as is usually found in the upper layers of shell-heaps, could have been the work of nomadic peoples, subject to frequent changes in environment, which would have interfered with the gradual progress in ceramic art.

To reach the second conclusion it is not necessary to travel far. It is enough to gather and view the vast amount of sherds which, judging by their shape, size, style and condition—soot and ashes still adhering to some of them—must have been used as cooking utensils. Often these fragments lie in the vicinity of layers of ashes and charcoal. The occurrence of *burens* or clay griddles, made of thick, coarse clay for baking their cassava bread, and still so employed by some West Indian peoples, will convince one that the aborigines had given a certain kind of bread an important place in their diet.

Pottery objects have been found: (a) in shell-heaps and kitchen-middens. These sites occur more frequently on the southern and western coasts, where, as it has been pointed out by Dr. J. W. Fewkes, quiet waters, good harbors, good fishing-grounds and extensive sand-beaches invite man to settle, affording greater accessibility and living facilities than on the northern coast. (b) In the floors of caves and between the crevices and shelves of large rocks. There are a great number of caves in Porto Rico, especially in the limestone region, in the northern half of the island. Overhanging cliffs on the northern coast have yielded abundant proof of aboriginal occupation. (c) In individual tombs and in cemeteries, near the *bateyes* or ballgame enclosures. These places occur, as a rule, in the mountainous interior, near rivers or running waters.

Almost invariably ceramic objects have been found broken. Not always even an imaginary reconstruction is possible. Several thousands of pottery fragments have been collected from hundreds of places, all over the island. This points to a large aboriginal population. Generally, the sherds found were the handles of bowls, water-jars, shallow dishes, and cooking ollas. As handles often assume the shape of solid, relatively heavy pieces moulded in the

figure of zoömorphic or anthropomorphic heads, attached to the rims or side of pots, they have endured the ravages of time and climate much better than the thinner, often undecorated sides. This will explain why the so-called "heads" are so common.

Very few whole specimens have been preserved. It is known that not more than twenty-five pieces have been collected since 1870, among other Indian antiquities of which there is a written record or description. Most of them have found their way to American or European museums. The list includes the specimens formerly in the collections of Dr. Coll y Toste, Mr. E. Newmann, Mr. V. Balbás, Father Nazario, and others figured and described by Dr. J. W. Fewkes in his *Aborigines of Porto Rico*. About 7 per cent. of all archaeological specimens of the pre-Columbian period, gathered in Porto Rico since 1870 and known to the writer by personal inspection or through written descriptions, are whole pottery objects—excepting clay stamps and beads. Most of them have been found by chance, very few being the fruits of systematic or scientific search.

The largest number of fragments have been turned up by the plow or spade while cultivating the fields and others have been discovered beneath or on the floors of caves. Probably a greater proportion of whole objects has been accidentally found in caves. A few were excavated from shell-heaps by anthropologists and amateurs. Much remains to be done in this respect. The scarcity of whole specimens may be due to a lack of thorough, scientific exploration and excavation and to the great humidity of the soil, coupled with the fact that the Arawak Indians interred their dead in small chambers dug in the ground, the walls of which, being held

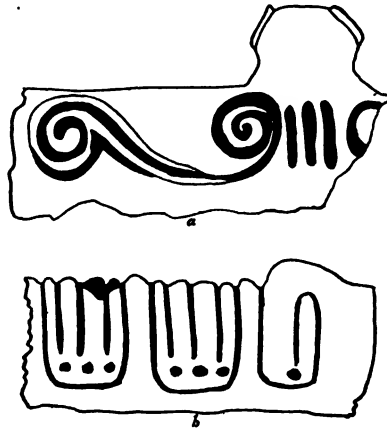


FIG. 42.—*a*, Double-scroll (incised) on the side of an olla. Joyua shell-heap, Porto Rico. *b*, Indented rim and incised linear decoration on the side of a vessel, Porto Rico.

in place by a revetment of tree-branches and brush, soon crumbled and destroyed or exposed to decay the mortuary offerings placed beside the dead.

The prevalent type of the whole pieces of pottery preserved to this day is the globular or semi-globular olla, and the bowl and boat-shaped vessels. (Figs. 48 and 49, *f.*)

One of the very few water-jars is shown in figure 48, *a.* It may be described as a globulo-conical type—a globular vessel having its base modified into a conical extension—requiring for its use a wooden support or tripod. Although it is devoid of all decoration, it is a very interesting specimen, showing to a certain extent the method employed in its manufacture. The marked asymmetry of its outline suggests that a potter's wheel, or other revolving device, was not used in its making—nor in the manufacture of any other pre-Columbian ware from the West Indies. An examination of this jar permits archaeology to supply the information which history ignores in regard to the native methods of manufacture.



FIG. 43.—Handle and rim decorations on a shallow dish excavated at Joyua, Porto Rico.

Near the extreme of the base there are certain wrinkles or corrugations, about the width of the tip of the small finger, arranged, more or less, in spiral form. In the inside of the vessel, corresponding depressions and roughness of the surface

are plainly visible. It is evident that the shape of this vessel was given by coiling around a stone or wooden object a rope-like fillet of clay, which was afterwards smoothed down so as to cause the partial obliteration of the junction of the layers.

This jar, together with many other relics, was excavated from the Ostiones Point shell-heap, at Cabo Rojo, in the southwestern corner of the island, at a depth of two and a half feet. Its color and shape are exceptional among the remains of the place. Height, 12 inches, circumference at its widest part, 15 inches.

The commonest type of aboriginal pottery is the olla. (Fig. 48, *b.*)

These were probably used for boiling water, storing food for the living and the dead, and for other domestic uses. Probably the average size was 7 inches in diameter—a convenient size for cooking purposes. There are, however, several specimens of a very small olla, from 2 to 2½ inches in diameter which, evidently, were not intended for the kitchen. (Fig. 48, *c*, *d*, fig. 48, *i*.)

In view of the great care with which these little vessels are made, and their unadaptability to many domestic uses, it is possible that in them was kept the *bixa* or vegetal substance with which the

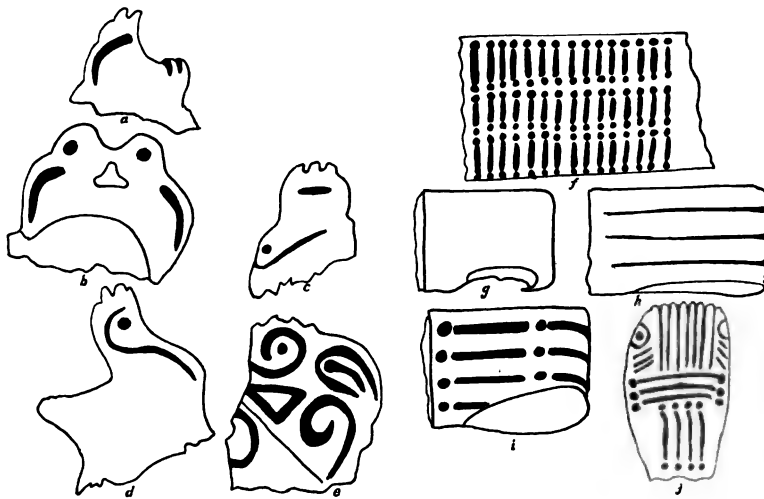


FIG. 44.—*a-e*, The evolution of an animal motive of ceramic decoration. The "Coco," a bird probably of the *Ibididae* group, as developed in the decoration of earthenware from Porto Rico. *f-i*, Dash-and-dot decoration on the handles of ollas, from Porto Rico. The theoretical evolution of this type of decoration may be followed by arranging these drawings in the following order: *g*, *h*, *i*, *f*. *j*, A handle from Santo Domingo, W. I.

Indians were in the habit of besmearing their bodies. Some of the beautifully handled "stamps" are well adapted in size and form for lids or covers for these ollas. The theory that the so-called stamps were used in connection with the painting of the face and body, gains strength when we consider certain morphological similarities with the small paint-jars in question. (See fig. 48, *d*.)

As will be seen with surprise, aboriginal vanity reserved for the

olla quite an unexpected function for this class of objects. Dr. Fewkes has related in his *Aborigines of Porto Rico* (page 109), the discovery of a little olla containing several hundred stone beads. Dr. Coll y Toste in his *Prehistoria de Puerto Rico* (page 37), has recorded the fact of a similar discovery at Utuado, by Mr. Legrand; Mr. Balbás of San Juan has related to the author the finding of a small earthenware vessel in which a necklace of pierced shells had been deposited. At the beginning of 1916, while visiting a sugar factory on the south side of the island, the present writer had the good fortune to hear from the lips of a peon, a vivid account of the unearthing of another jewel-jar which had preserved, at a very moderate depth, a beautiful string of 305 marble beads—amulet and all. His description of the vase corresponded somewhat with the printed accounts spoken of. Therefore, we are not proceeding with undue haste when we reasonably infer that certain vessels of the globular or semi-globular type, were used as jewel-boxes or reliquaries, to keep the coveted *colecibi* or stone-bead necklaces, the amulets, fetishes, ear-pendants and other jewels. Fig. 48, *h*, shows a remarkable jewel-pot. The motive of the relief decoration is a conventionalized snake figure. Each of the knob-like handles (one is missing) is the starting point of two graceful curves in relief, resembling somewhat the small letter *c*. These narrow bands are transversally cut up by shallow pits, giving to them the appearance of the annular body of a centipede. Incised lateral lines, also in the shape of the letter *c*, complete its decoration. (See fig. 47, *a*, *b*.)

It seems that the cooking ollas were made in a much plainer style. Fig. 48, *b*, shows one found in an Indian grave near Cabo Rojo, at Ostiones Point. The entire decoration consists of four equidistant relief bands of undulating design, about one inch long, placed near the rim. So much soot was still adhering to its sides that the hands were soiled in handling it. The contents—a shapeless mass of black earth—was analyzed in the hope of determining the kind of food placed as a mortuary offering, but, unfortunately, all traces of organic matter had completely disappeared.

Shallow Dishes.—Several specimens of broken shallow dishes

have been examined by the author in various small collections. However, not a single whole piece remains.

An excavation of Ostiones shell-heap yielded twenty of these fragments—at different depths down to four feet. Most of them are one of the extremes or handles of circular or elliptical dishes. Many are decorated with the raised figures of "monkey heads"; other zoöomorphic figures occur frequently—pelicans, owls, fishes and birds. (Fig. 49, *a*, *c*, *g*, fig. 49, *i*, *j*, *k*, *l*, *m*, *o*, *p*, *q*.)

An imaginary reconstruction of several fragments gives to the intact object a depth of 1 to 1¼ inch.

Figure 49, *c*, shows the best preserved shallow dish or clay spoon in the author's collection. The rims, raised above the bottom about ½ inch, merge into a lateral handle in the shape of a fish tail. The modelling is good and the surfaces are very well polished and painted with a lustrous red.

Although a study of the stratigraphy of the Ostiones heap was not included in the author's program, an observant eye was kept for differences in type and technique in the sherds found. In general, it may be stated that painted ware occurred to a depth of 2½ ft.—and of course, it was in this layer that the most delicate forms and the most ingenious patterns were found. It seems that pottery was painted after firing, as the pigment easily dissolved when cleansed with soapy water. Other layers contained, in their respective order: unpainted, but polished ware with relief decoration; coarse ware with incised decoration; undecorated specimens and lastly, finger-pressure-made ware of the coarsest kind.

Handles.—We surely do not pretend to know everything about Porto Rican ceramics—the really tell-tale and instructive specimens being so scanty—yet we have been able, notwithstanding, to determine, among other things, that usually the most elaborate decoration was bestowed upon the handles of dishes, bowls, jars, and

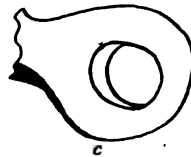
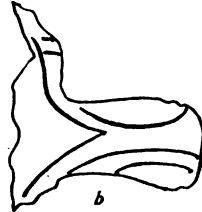
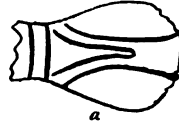


FIG. 45.—Knob-like pottery handles from Porto Rico.

vessels. Broken handles have been gathered by the hundreds. They are the commonest of pottery objects. Great ingenuity is often displayed in their making, the general character of the decoration being symbolic. (Fig. 49.) Judging by the material collected, the art had reached its climax when it attempted the reproduction of animal effigies by embodying in the whole object the complete form or outline of an animal—as was practised by several tribes of Central and South America.

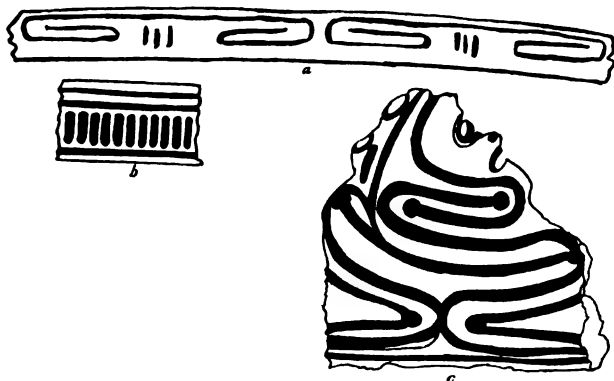


FIG. 46.—*a*, Incised decoration on the side of a large shallow dish, Porto Rico. *b*, Incised decoration on the rim of a small olla, Porto Rico. *c*, Elaborate curvilinear incised decoration on the sides of a clay vessel from Joyua shell-heap, Porto Rico.

The most remarkable effigy vase yet found in Porto Rico is shown in fig. 50, *a*, *b*. It represents a female kneeling figure, with a human-like face, arms, and hands resting against the body and the upper part of the abdomen. The mammae, sexual organ, the vertebral column, six ribs, and feet with only three toes, are well modelled according to the most curious and interesting native concepts of anatomy. The back part of the head is decorated with an imperfect quadrangle of rounded corners, enclosing two circles separated by a vertical line. All these lines are incised. The vertebral column and ribs are in raised lines. The vertebrae are represented by shallow pits. The thighs and knees are human; but the lower part of the legs and feet are abnormal, probably inspired by an animal model. The ears are quadrangular and have

two perforations. The whole object is hollow and water is admitted through a small aperture on the top of the head. Size: $7\frac{1}{2}$ inches high, $3\frac{1}{2}$ inches wide. It was accidentally found near the western coast of Porto Rico, in the vicinity of Aguada.

Suggestions of animal effigies, seen in fragmentary pottery; are however, common. Here the vessel preserving the primitive globular or ellipsoidal form, has the head, legs, wings or tails of animals, moulded or stamped in the rim or periphery.

That these symbols had a religious or esoteric meaning, probably expressing a desire to propitiate the occult zoömorphie or anthropomorphic spirits of their invisible world, is suggested by the very absence of floral or other designs to which it would have been more difficult to attach a religious significance. Their ability as modellers would have permitted them to find inspiration in plant life—here abounding in forms of great decorative value—in the celestial bodies and in some of the simpler scenes of their home life. Yet none have been depicted.

A classification of handles and other sherds as to the motives of decoration would group them into three classes: Those having human, anthropomorphic, animal, or mythological figures luted on; those devoid of decoration, where the function of a handle has been attained simply by folding a band or coil of clay in the shape of a loop, so as to permit the insertion of one or several fingers. (Figs. 44, *g*, 45, *c*.) In this class also fall the knob-like or spherical protuberances attached to the sides or rims of vessels. Some of these devices greatly resemble certain handles of modern porcelain ware.

The third general class or type comprises handles decorated with geometric designs. (Fig. 44, *f*, *h*, *i*, *j*.)

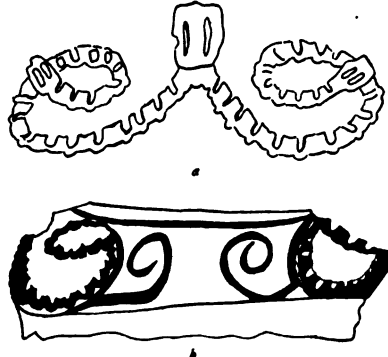


FIG. 47.—*a*, Diagram of snake form in relief applied to the sides of jewel jar of clay from Porto Rico. *b*, Diagram of lateral decoration on the jewel jar shown in *a*.

Animal figures represent pelicans, toads, snakes, owls, parrots, manatees, fishes, hutias (*Capromys*) and bats. Monkey heads are so numerous that it has been possible to detect certain differences in technique among them, admitting of their being grouped into the following sub-classes: those having all features cut in the same plane; those having a greatly exaggerated prognathism; and those so highly ornate and conventionalized as to have lost almost all semblance to the original model. (Fig. 49, *k, l, m, p, q.*)

Of the handles of the first type enough fragments occur in certain districts, representing a given animal as to show an influence of environment on decorative art at once evident and remarkable. The ibis (or *coco*)¹ group of ware from the Cabo Rojo region allows us to infer that that animal had an important place in the religious or economic life of those tribes. It may have totemic significance. The *coco* is now extinct in Porto Rico. It must have disappeared with the deforestation of the island (fig. 44, *a, b, c, d, e.*)

But the question arises: Where did the native find a model for the monkey heads which predominate over all other animal forms? Monkeys were not known in Porto Rico.² They must have been familiar, however, to the continental Arawaks, whose descendants the Porto Rican Indians probably were, and to the Caribs, who were in the habit of assaulting by the sea the natives of Porto Rico. It is possible that continental influences persisted in the traditions of the Arawak race, and that they took form as a motive of pottery decoration in the shape of simian models. (Fig. 51, *a to h.*)

Dr. Ståhl in his *Los Indios Borinqueños* attributes to the Caribs exclusively the manufacture of ceramic objects found in Porto Rico, believing that they lived along the southern coast—while the Arawak retired to the mountains of the interior. But this belief is totally disproved by the identity of civilization established by the constant similarity of archaeological remains from all sections of the country—sea-coast or mountain, river bank or cave floor. Monkey-headed handles, for instance, have been picked up

¹ The *coco* is probably a bird of the *Ibididae* group. It still lives in the coastal wilderness of the neighboring island—Santo Domingo, where it is known as *coco*.

² The fossil remains of monkeys have never been seen among the skeletal deposits of Porto Rican caves. At least, there is no written record of such discovery.



FIG. 48.—Pottery vessels; ollas, bowls, boat-shaped vessels.

near Barros, Utuado, Lares, Morovis, Corozal, and other central *Barrios* as well as in almost every township on the coast.

It should be noted that monkey heads are, much more frequently than in the case of other animal forms, surrounded by incised geometric or conventional decorative devices, sometimes greatly elaborated.

The more these little heads are studied the more one is inclined to believe that they are not representations of animals contemporary with their makers, but rather the plastic expression of the survival



FIG. 49.—Portions of pottery vessels representing various animals.

of traditions pointing to a foreign origin of the race found by Columbus on the island. For convenience, therefore, we will call them mythological figures. The fact that there is an element of monstrosity about these rude carvings suggests the supernatural character of the beings depicted, or the tradition of natural beings viewed through the distorting prism of savage superstitious imagination.

That they are monstrous, strange and hideous, is not a proof of low artistic ability, but, on the contrary, it is a display of dexterity superior to a simple realistic representation of the subject.

As to size, the handles in the writer's collection vary from 3 inches to $1\frac{1}{8}$ inches.

Figure 44, *f*, well exemplifies one of the characteristic aboriginal West Indian designs which consists of a symmetrical arrangement of groups of parallel lines ending in or interrupted by shallow pits or dots. Concentric circles are also interrupted by radial dashes or lines. The same device is frequently applied when long parallel lines occur. Other familiar designs are circles, scrolls, crescentic lines, elliptical curves, triangles, rectilinear and curvilinear meanders, chevrons, and combinations of all these. Curvilinear designs, some of them very complicated, occur more frequently in clay than in stone and other hard substances—probably because of the greater facility afforded by clay for the production of complex figures. (Fig. 46, *c*.) A few examples of labyrinthine designs have been observed in pottery, especially among the so-called stamps. (Fig. 49, *b*.)

Human Heads.—Realistic representations of the human head are rare in Porto Rican ceramics. It is debatable whether it was beyond the artistic powers of the aborigines to model the human face *as it is*. But here again the author would call the attention to the fact that this very complexity of lines, this distortion of the human features by means of strange relief lines may be a proof of efficiency rather than deficiency in the art. One may suppose that what to us seems a distortion of the human face is simply the result of an effort to represent with relief lines, in clay, the tattooed designs on the Indian's face. Labrets, ear-pendants, head orna-

ments are also often shown. The rock and bone etchings of the palaeolithic age in Europe are far superior to the work of our aborigines as normal representations of men and animals. Yet everything else points to a cruder civilization, an inferior intellectual development in that remote age.

Our Indian human-like clay heads, with their greatly disproportionate nostrils, their enormous gaping mouths, and the face otherwise disfigured by concentric lines for eyes and eyebrows, their grotesque frontal bands, large, perforated ears and curious coronets or headdresses, are, unquestionably, exponents of a well-developed art—an art *sui generis*—too sure of its technique to attempt an impossible victory over the difficulties offered by the material worked.

Among the human heads in question there are some collected on the southern coast, near Guayanilla, which seem to differ entirely from the common type. The outline of the face is polygonal—figures of six, ten and twelve sides being the rule; two slits or shallow pits for eyes—sometimes slanting—a prominent nose—occasionally of Aztec type—and an elongated pit for a mouth complete this simple and uncommon type of decoration. The face is devoid of all conventional additions as in other types. (Fig. 49, *d, h.*)

There are also several other conventionalized variations of the best defined types which would be of difficult classification.

The characteristics of the several types we find modified and combined in an extraordinary variety.

Pottery Stamps.—Cylindrical and discoidal pottery stamps occur frequently in Porto Rican collections (fig. 51, *i-n*).

The suggestion that these objects were used to stamp pottery is subject to discussion.

Not long ago, the writer partially excavated a large shell-heap on the western coast of the island. Among the several hundreds of sherds obtained there were ten discoidal stamps. He has looked in vain, among a considerable number of potsherds and fragments of all descriptions, *taken from the same heap* which yielded the stamps, for a repetition of the patterns cut in them. A similar

search among many other clay objects gave the same negative result. Moreover, nearly all the native ware was more or less globular in shape and the plane surface of a stamp could not have been adapted to any objects having curved surfaces. He knows of



FIG. 50.—Effigy jar or canteen. *a*, front view, *b*, back view.

no ware from this region having large plane surfaces, except shallow dishes and the griddles used to bake *casabi*, and these are undecorated. It is not easy to admit that they were employed for that purpose until the copies of their patterns in contemporary earthenware are produced. It is very probable that they were in some way used in the execution of facial or body paintings. Such

an hypothesis will explain why some stamps are provided with beautiful and ingeniously carved handles—as if intended to satisfy the whims of personal vanity. Whether the Indians knew how to prepare some oily or resinous substance of the consistency necessary to retain the impression made by a burnt clay pattern, is not known, but is highly probable.

Mr. E. F. Thurn in his work *Among the Indians of Guiana*, page 196, speaking of the painting of the Indians says:

Some women specially affect little figures like Chinese characters, which look as if some meaning were attached to them, but which the Indians are either unable or unwilling to explain.

Mr. Theodoor de Booy in his article: "Pottery from Certain Caves in Santo Domingo, West Indies,"¹ figures one clay stamp from the Salado caves (Santo Domingo), which, as will be seen, resemble certain characters "as if some meaning were attached to them." The similarity of customs of the Indians of Guiana and of Haiti and Porto Rico has been established on certain points.

Fray Iñigo Abad² says that,

the Indians painted their bodies with a variety of horrible figures, with oils, waters and certain *viscous* resins, extracted from trees.

Of the discoidal stamps there are two classes—with and without handles. Figure 48, *d*, shows a stamp provided with a handle cut in the shape of the heads of two birds addorsed. Sizes, from $2\frac{1}{2}$ to $3\frac{1}{2}$ inches in diameter.

Many of the specimens were so badly damaged that comparison with certain stamps from Santo Domingo was out of the question. One, however, had a well-modelled frog as a handle, like the Dominican specimens.

The cylindrical or roller stamps are rarer in Porto Rico than in other West Indian islands. I have seen but one specimen of this class in local collections. The same suggestion here made as to the use of the stamping disks applies to the rollers. In the author's collection there are some large pieces of large ollas or dishes deco-

¹ *American Anthropologist* (N.S.), vol. XVII, no. 1, 1915.

² *Historia Geográfica Civil y Natural de la Isla de San Juan Bautista de Puerto Rico*, p. 45.

rated on the rims by incised lines. Judging by the sizes of the objects and their plane surfaces, they would have been well adapted to receive the impression of roller-stamps—yet the patterns seen on them are of such nature that they could not have resulted from the application of a moving stamp rolled over their surfaces.

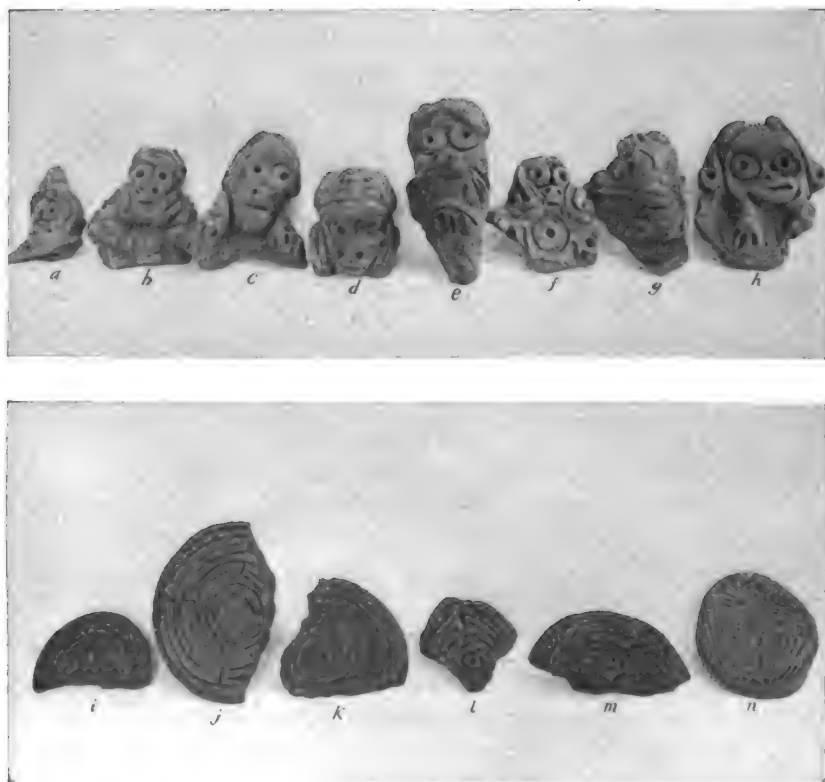


FIG. 51.—*a-h*, Pottery figures of simian aspect; *i-n*, pottery stamps.

Several other clay objects have been reported from the islands and islets which form the geographic, though not the ethnologic Porto Rican group: Porto Rico, Culebra, Vieques, Mona, Monito, Caja de Muerto and Desecheo. Idols, standing or kneeling, rattles ("maracas"), smoking pipes and discoidal graters, provided with sharply pointed shell or stone fragments as teeth. Cylindrical

clay beads, perforated for suspension, are mentioned by Las Casas as having been covered with thin plates of gold and worn as ornaments or pendants. Figure 48, *g*, shows one in the author's collection perforated both laterally and longitudinally. Though very well preserved, its golden jacket is missing. After diligent search, it has not been possible to locate a single gold-covered bead, nor indeed a single prehistoric gold object from Porto Rico. No mention is made of them in modern archaeological literature, except to note their absence. This may be due to a lack of thorough, systematic exploration; to the avarice of the Spanish conquerors and early settlers—who must have carried it away to be melted and coined; or to its wilful destruction by the Indians, thinking that they would thus stop the persecutions by the Spaniards, "whose god was gold."

We have given a brief description of aboriginal ceramics intended to convey a general idea of the better-known products of that industry. We shall now try to outline briefly how this was accomplished—what technical methods were employed.

On reaching this point, it will be pertinent to recall again the excavation of the Ostiones Point shell-heap. At a depth of $4\frac{1}{2}$ ft. a tiny pot was found not over $1\frac{1}{2}$ inches in diameter—the most primitive-looking specimen so far added to the writer's collection. Because it shows signs of having been fired, it will be recognized as an example of the second stage in the art of pottery making. During the first, a rude piece of clay was simply hollowed by hand and placed in the sun to dry. But our little specimen shows that it is made of coarse, unmixed clay, rudely kneaded into shape by finger pressure, the inside and outside surfaces having been left rough, uneven, unpolished, undecorated, and unpainted.

Just what the next step was, it is not possible to say with precision; but as evinced by other relics, smoothing and polishing of the exterior surface; the use of coils of clay neatly joined and smoothed down by means of stones, as in the object shown in fig. 48, *a*; the tempering of the clay with other hard materials, such as sand, crushed stone and shell—to increase its hardness; the

decoration, by simple incised lines at first, then by complicated linear devices, which by a gradual process developed into their curious relief technique; the uniform painting of the ware with a simple color—red, yellow or brown, were some of the successive accomplishments of the art in Porto Rico, which would have undoubtedly culminated in the invention of the potter's wheel if the aborigines had not been surprised by the Spanish Conquest.

CONCLUSIONS

It is greatly to be regretted that the archaeological material from Porto Rico lacks sufficient instructive specimens to allow a thorough analysis of our aboriginal ceramic industry. It would not be safe to make sweeping conclusions based solely on the scanty material collected. A study of the relations which existed between this and the other native industries, and an exact determination of the question of the aboriginal or imported origin of the art in Porto Rico would be premature.

If, as stated by Holmes,¹ a certain aspect of ceramic art reflects the degree of development of other coexisting industries, the most brilliant and illuminating reflections of lithic and textile art in contemporary clay have been either lost or remain yet buried in the ground. The artistic and constructional qualities of a great many of the clay artifacts collected in Porto Rico do not show evidences of a parallel growth with the superb stone, shell, wood, and bone carvings.

O. T. Mason² declared Porto Rican implements the most beautiful in the world. Speaking of three-pointed stones, he says:

Their elegance of design and variety of execution in conformity with an ideal, characterize these as the highest type of sculpture with stone implements in the world.

Truly, the "finds" made during the many years which have elapsed since these words were written, have amply justified the

¹ "Origin and Development of Form and Ornament in Ceramic Art," *Fourth Annual Report of the Bureau of American Ethnology*, p. 444.

² The Latimer Collection of Antiquities from Porto Rico, *Smithsonian Report* (1876), p. 393.

enthusiastic statements made by Mr. Mason. Not only wonderful stone sculptures have been recovered—where the details of technique are as surprising as the conception of the idea involved—but a lesser number of bone and shell carvings have come to attest their mastery of the most difficult arts within the reach of primitive peoples. Without the use of iron or other metallic implements, the *Borinquenos* established in a remote past that perfect mastery over mechanical difficulties which enabled them to treat stone, shell, and bone as if they were plastic substances, twisting them, so to speak, into any desired shape; converting river-pebbles into strange idols of human form; piercing the hardest volcanic stones with incredibly fine and symmetrical perforations; carving out of solid granite artistic chairs of strange designs; cutting the wide lips of large conch-shells into beautiful implements of exquisite polish.

Yet, with two or three exceptions, their ceramic products do not exhibit the same refinements of technique and the same degree of artistic development.

It remains to be proved whether the race found by Columbus on the Island was autochthonous. Porto Rico will remain an archaeological riddle until the whole history of the development of lithic culture is amply exemplified by specimens collected on the island—until chipped or flaked stone implements come to light to connect the relative splendor of neolithic culture with the darkness of palaeolithic times.¹ No influence of climate, of racial characteristics, of natural environment, of ethnic idiosyncrasy, can account for the absence of the remains of an antecedent culture on this island. *Natura non facit saltum*. And whether this absence is merely accidental or whether chipped implements are buried in the unexplored layers of the subsoil is something that has not been established beyond doubt. Nevertheless the present writer will insist in calling it a riddle and he will indulge in the mental satisfaction of offering a solution to the problem by suggesting that the race of stone, bone, wood and shell, carvers, and potters, whose relics we have gathered was not the autochthonous people of Porto

¹ Flaked implements have already been found in Jamaica. See Duerden's *Aboriginal Indian Remains in Jamaica*, page 7.

Rico; but a branch of a race which migrated to it from an unknown part of the American continent and which counted, among its industrial and artistic accomplishments, stone sculpture, wood, bone, and shell carving and the art of making vessels of clay. Before that time, and until the necessary evidence is secured, we will have to admit that the island was uninhabited.

However, we must not be too radical when we are dealing with the shadows of a distant past. We must not forget that, as said before, at the bottom of shell-heaps, there has been found a certain type of earthenware which clearly is not only the most archaic but obviously the most primitive—as if it were the starting-point of a new achievement. It is possible that climatic conditions facilitated a rapid progress. To what extent climate may have been a favoring factor will be understood when we remember that it permitted a continuous outdoor-life during the whole year; that suggestions of forms were constantly kept by nature before the eyes of the incipient artist; that the mildness of the weather permitted him to experiment with great comfort and greater perseverance than the less fortunate inhabitant of cold climates; that the fertility of the soil and the abundance of small game and fish allowed him to lead a sedentary life—another condition which probably fostered the growth of the industrial arts. Time was ample, materials were plentiful, while certain peculiar conditions of light and color which obtain in the tropics, stimulated the imagination and the aesthetic sense. This probably will account for the absence of many intermediate forms which mark the painful and slow progress of the arts in other parts of the world—where life is precarious, the soil sterile, the climate hostile.

Supposing that pottery-making originated with the aboriginal race of Porto Rico, it would not be amiss to try to explain the rapidity of the evolution—in the artistical and technical sense, rather than in the chronological—by a supposition of foreign influence.

It is well known that communication between the islands of the West Indies and Central and South America was already habitual at the time of the arrival of the whites. The improvement

of the methods of manufacture—and even of their complete change—by effect of the contact with the natives of other lands, seems not only possible but highly probable.

However, the fact remains that the pottery objects and fragments from Porto Rico show a unity of construction and decoration pointing to a growth wholly spontaneous. It must be repeated—it is too early to draw conclusions. Exploration and excavation are better than disquisition.

It is to be hoped that an exhaustive archaeological survey of the West Indies will be undertaken in the near future so that it will be possible to establish, in a positive manner, the direction of prehistoric migratory currents on the American continent. As a result of this preliminary study of pre-Columbian ceramics, the writer has, at least, acquired what seems to be a true orientation in the effort of determining the relations of this art with the other industries and its meaning in the history of civilization.

The following plan of investigation is here suggested merely as a tentative outline embodying the new orientation in the treatment of the Antillean prehistoric problem:

1. Extensive excavation and study of the stratigraphy of Porto Rican shell-heaps;
2. Comparative study of the stratigraphy of coast and inland shell-heaps, including cave deposits;
3. Comparative study of the contents and stratigraphy of the shell-heaps of Porto Rico and the lesser Antilles as far as Trinidad and the immediate coast of Venezuela;
4. Extensive study of ceramic remains *in situ*, with a view to determining their coexistence with what are believed to be the products of an older culture, as typified by stone collars and three-pointed stones.

It is thought that such investigations would probably determine the origin of the aborigines of Porto Rico.

SAN JUAN, P. R.

NOTES

Recently, fragments of a tripod vase, with simple cylindrical legs, have been found at Cerro de Las Mesas, near Mayaguez, P. R. This object shows no relation, however, with the well-known Costa Rican and Chiriquian tripods. It seems that they represent the first effort, on the part of the potter, to give stability to her bowl by means of three legs.

A pottery fragment with shell inlay—the only specimen from Porto Rico—has also been found.

The author takes this opportunity to extend his thanks to Dr. J. Alden Mason, of the Field Museum of Natural History, for his many kind suggestions for the improvement of this paper.

NOTES ON THE ARCHAEOLOGY OF FLORIDA

By CLARENCE B. MOORE

IN "Anthropological Survey of the Southwestern Coast of Florida,"¹ p. 62, referring to recent work done for the National Museum, we find:

The region of the coast south of Key Marco, which was supposed to be of no great account as far as aboriginal remains were concerned, was found to be full of sites, shell-heaps, platforms, and mounds with canals and other evidences of former Indian occupation, the remains covering in individual instances twenty, thirty, and even eighty acres of ground. Only the southernmost parts of the coast are poor in such remains. All of this is still intact so far as scientific exploration is concerned.

We fear that those not familiar with the literature on the subject (and it is hard to keep the run of various publications) might infer from this that the part of Florida referred to had been neglected by the numerous archaeological expeditions under the auspices of the Academy of Natural Sciences of Philadelphia, that have visited that state.

On the contrary, the hundred-foot steamer, carrying a powerboat as a tender, with an average of eleven men to dig and to supervise, has spent much of five seasons in the Ten Thousand islands, good parts of which were devoted to the region south of Key Marco, in one instance the expedition continuing around the end of the peninsula to Lake Worth, on the eastern coast.

We have published² the results of most of our investigations between Key Marco and Lossman's Key, the southernmost of the Ten Thousand islands, including principal sites, Dismal Key,

¹ Explorations and Field-work of the Smithsonian Institution in 1918. *Smithsonian Miscellaneous Collections*, vol. LXX, no. 2.

² "Certain Antiquities of the Florida West-coast." *Journal, Academy of Natural Sciences of Philadelphia*, vol. XI. "Miscellaneous Investigation in Florida." *Journal, Academy of Natural Sciences of Philadelphia*, vol. XIII. "Notes on the Ten Thousand Islands, Florida." *Journal, Academy of Natural Sciences of Philadelphia*, vol. XIII.



IMPLEMENT OF SHELL. HEIGHT, 7 INCHES

Fikahatchee Key, Russell's Key, Chokoloskee Key, Turner river and Lossman's Key.

We are not prepared to admit that

the region of the coast south of Key Marco was supposed to be of no great account as far as aboriginal remains were concerned

by anyone familiar with that region through personal investigation or through comprehensive reading on the subject.

Nor, on the other hand, is it our opinion that this region is more than a continuation of the great shell deposits farther north: The huge mound above Cedar Key; those at Cedar Key; the so-called Spanish Mound, Crystal river; Indian Hill, on Tampa bay; Josselyn Key; the Battley Place, now Pineland on Pine island; Mound island; Addison's Key; Goodland Point on Key Marco; and others, all of which we have carefully examined and nearly all described in print.

The highest shell-mounds of the coast are north of Key Marco as is the best defined aboriginal canal.¹

Our own experience and that of others has convinced us that in the shell-heaps of the southwestern Florida coast, which extend southward from above Cedar Key, practically nothing of interest has been found that can begin to compensate one for the heavy outlay of time and money needed for their demolition. The great shell-mound on Bullfrog creek, ten miles southeast from Tampa, removed to furnish material for roads, was carefully watched, it is said, while the work was going on, without any discovery of importance.

An accurate survey of the shell site on Turner river might be of interest, but it is our belief that digging into the shell deposits hereafter will be more frequently suggested than done.

Incidentally we would say here, that while digging in the muck and shell in the Ten Thousand islands and somewhat north of them (Mound island) we have made also great collections of objects of shell, including many implements wrought from entire shells (*Busycon perversum*, as a rule). These implements, often made from large shells and usually found by us on the surface, have been

¹ On Mound Island, *Certain Antiquities of the Florida West Coast*, p. 366, et seq.

presented by us to the principal museums of North and South America and of Europe.

Though we have carefully described and figured these interesting tools, archaeologists do not seem to have devoted much attention to them, perhaps through unfamiliarity with them, owing to the limited extent of the region in which they are found.

This season (1919) we gathered at Goodland Point, Key Marco, three tools of shell, of a variety unlike any yet described. Of these shell tools, wrought from *Busycon perversum*, and with the customary removal of part of the body whorl, two are alike, while one differs from them in certain particulars. The duplicate has been sent to the Museum of the American Indian, Heye Foundation, while the other two have been placed in the Moore collection in the Academy of Natural Sciences of Philadelphia.

Each of these two has had removed the upper half of the spire, a portion of the inner part of the parietal wall, and the columella except the base. This was done, perhaps, with the exception of the partial removal of the spire, of which we shall speak later, to lessen the weight of the tool without impairing its efficiency.

The two implements, however, similar to this extent, differ decidedly in other ways. The tool shown in plate xiv, about 7 inches in length, has two round holes through which a handle readily could pass, constituting with the shell, a kind of hoe or pick for loosening the soil. The orifice left in the spire shows no mark of wear.

The other tool (plate xv) having a length of about 6.5 inches, has in the body whorl, a single, irregular hole with rough margin, seemingly unfitted for a handle and unworn by one. The periphery of the space left by the removal of the upper part of the spire, is smooth and apparently has been subjected to considerable wear. It appears likely that this tool, instead of having a handle at right angles, as had nearly all those with which we are familiar, had one inserted into the space in the spire, in line with the axis of the shell, and was used in the manner of a spade.

PHILADELPHIA, PA.



IMPLEMENT OF SHELL. HEIGHT, 6 $\frac{1}{2}$ INCHES

BATIDO AND OTHER GUATEMALAN BEVERAGES PREPARED FROM CACAO

By WILSON POPENOE

AMONG the Kekchi and Pokonchi Indians, descendants of the ancient Maya who occupy a portion of northern Guatemala, the much-prized cacao bean is principally used to prepare a drink called *batido*. While known under a name taken from the Castillian tongue, the mode of preparation, the use of *orejuela* as flavoring, and the ceremonial importance of the drink all suggest an ancient origin. *Batido* seems to be, in fact, almost identical with the ancient Mexican beverage described by Safford in the following words:¹

Chocolate (from the Nahuatl *chocolatl*), as prepared by the ancient Mexicans, was a paste made by grinding toasted seeds of cacahuatl (*Theobroma cacao*) upon a stone metate with the aid of a stone resembling a rolling pin. The paste was flavored with vanilla (*Vanilla*) and the aromatic petals of the ear flower, or *xochinacatzli* (*Cymbopetalum penduliflorum*), and was sweetened with the syrup of the maguey or metl.

Among Guatemalans of European extraction coffee is the great beverage of the present day. Among the Indians of the Verapaz, however, *batido* still holds an important position. It is offered to visitors in the same manner as coffee is served by Europeans, and huge steaming pots of it are conspicuous features of all *fiestas*.

To prepare *batido*, the cacao bean, from which the outer integument has not been removed, is roasted over a slow fire for a short length of time, until it is properly browned. It is then ground upon the *kaa* (metate of the Mexicans, the grinding stone used to prepare corn for tortillas). While still in coarse fragments, one half the amount upon the stone is removed and placed to one side; the remainder is then ground to a fine powder and added to the coarser

¹ Food Plants and Textiles of Ancient America, by W. E. Safford, in *Proceedings, Second Pan American Scientific Congress*, Sec. 1, Anthropology, Washington, 1917.



Second stage in the preparation of *batido*. The cacao beans are ground upon the milling stone, some of them being reduced to powder, others left in coarser fragments.



FIG. 52.—Toasting cacao beans to make *batido*. The beans are placed upon an earthenware griddle, termed *comal* in Spanish, and toasted for a short time over an open fire.

portion. The whole is then placed in a *guacal*, a receptacle made from the fruit of *Crescentia cujete* L. A small quantity of tepid water is added, and the mixture is beaten with the hand (hence the name *batido*, beaten) until some of the fat separates from the cacao and stands upon the surface in small white globules. If the fat does not separate readily the mixture is heated slightly.

Before it is mixed with hot water to make *batido*, the mixture, which has the consistency of thin paste, is seasoned in some manner. The substance most commonly used for this purpose is black pepper (*Piper nigrum*), although cinnamon (*Cinnamomum zeylanicum*) is widely used, and vanilla (*Vanilla planifolia*) is employed by some. Occasionally the mixture is colored brick-red by the addition of ground *achiote* (*Bixa orellana* L.). The orthodox manner of flavoring *batido*, however, is by adding *muk* or *orejuela*, known in English as ear-flower. The use of this plant seems to be on the decline among the Guatemalan Indians, cinnamon, black pepper (imported products) and vanilla being more commonly used at present. Nevertheless, *orejuela* is still sold in the markets and even carried from the Verapaz to other parts of the republic.

The *orejuela*¹ is a slender tree some thirty feet high, with glossy, deep green leaves about four inches long and more or less lanceolate in outline. In northern Guatemala the flowers appear as early as March, but the principal season is said to be June, and it is at that time that the thick, leathery petals, each having the form of a diminutive ear (hence *orejuela*), are gathered and dried in the sun, after which they can be kept for a long time. When ground and added to *batido* they impart a flavor strongly resembling that of black pepper with the addition of a resinous bitterness.

Another product which is sometimes used in the preparation of *batido* is the seed of *Achradelpha mammosa* Cook (*Lucuma mammosa* Gaertn.), the *zapote* of the Spanish, known in Kekchi as

¹ Though mentioned by writers on Mexican plants since the earliest times, the *orejuela* remained botanically unidentified until W. E. Safford showed in 1910 that it was *Cymbopetalum penduliflorum*. An interesting account of the history and uses of this plant is given by Safford in the *Report of The Smithsonian Institution for 1910*, pp. 427-431, including a representation of the illustration made in 1576 and published in 1651 by Hernandez.

saltul and in Pokonchi as *saltulul*. This tree is wild in northern Guatemala. It yields a fruit which is a common sight in every market, and is widely used by the Indians as food. The large

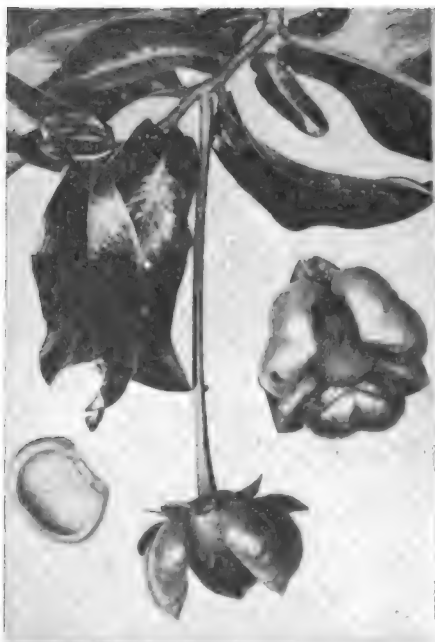


FIG. 53.—The *orejuela*, or sacred ear flower of the Aztecs. This interesting tree, recently determined botanically by W. E. Safford after remaining unidentified for three centuries, was used by the Aztecs for seasoning their chocolate. The Maya tribes of northern Guatemala use it today for the same purpose. Its thick, leathery petals, when dried and powdered, impart a flavor resembling that of black pepper with a resinous twang. Botanically the *orejuela* is *Cymbopetalum penduliflorum*. (One-half natural size.)

seed is elliptical, brown, and polished except on the ventral surface. Within the hard shell is a kernel two to three inches long. This is removed and roasted, after which it is ground and mixed with the cacao paste. According to some Indians, this seed is used to impart flavor to the cacao, while others state that it is employed solely to increase the quantity. The latter seems much more probable, in view of the fact that cacao is expensive, in comparison with other foodstuffs consumed by the Guatemalan Indians. Twenty to twenty-five cacao beans are at present sold for a peso ($2\frac{1}{2}$ cents U. S. currency).

To prepare *batido* for drinking, a quantity of the seasoned cacao paste about equal to a teaspoonful is added to a *guacal* of hot water. The *guacal* contains about half a pint. After drinking the liquid, the coarse frag-

ments of cacao which remain in the bottom of the *guacal* are tossed into the mouth and eaten.

Due to the small quantity of cacao used and the addition of a

large amount of seasoning, batido is not pronouncedly chocolate-flavored. In those rare instances where an unusually large amount of cacao is used it is a much better beverage, but usually it is a murky, slightly oily liquid having a strong flavor of black pepper with a faint suggestion of chocolate. Occasionally it is sweetened by the addition of cane sugar.

In comparison with *batido*, the drink known as chocolate is rare among the full-blooded Indians of northern Guatemala. *Batido* is used only by the Indians; chocolate is used by Europeans and natives of mixed blood, and to a very limited extent by the Indians.¹

The preparation of chocolate presents no unusual features, but a brief description of the method employed in Guatemala may be of interest. The cacao beans are roasted slightly over a charcoal fire, and the outer integument is removed. By the poorer people this integument is ground separately and later mixed with the chocolate; by others it is generally discarded. The use of ground zapote seed (*Achradelpha mammosa*) as an adulterant of chocolate is said to be common.

The proportions of cacao and sugar vary greatly, but it is generally considered that one pound of roasted cacao to one and a fourth or one and a half pounds of sugar is the best proportion. When manufactured for cheap trade two pounds of sugar, or even more, are used to each pound of cacao. The cacao is ground upon the stone, ten separate times if the very best results are desired, and is then mixed with the sugar. Before placing it in the molds, it is seasoned with vanilla or cinnamon, one or two vanilla beans (pods) being used to a pound of cacao, or one ounce of cinnamon to six pounds of cacao. The use of cinnamon as a flavoring for chocolate is widespread in Guatemala.

After mixing the ground cacao with the sugar, the whole is heated slightly and placed in molds, or it may be molded with the hands into thin round cakes about two inches in diameter. The

¹ It is interesting to note that the Indians formerly used cacao beans as money. According to G. N. Collins (see Safford, in *Smithsonian Report for 1916*, p. 421) this use still persists in the Mexican state of Chiapas, but I did not observe it in any part of Guatemala during my travels in that country in 1916-1917.

molds commonly used divide the chocolate into squares of about an ounce each, one square being sufficient for a large cup of the hot beverage. To prepare the latter, a square of chocolate is broken into small fragments and placed in the bottom of a small earthenware jar; a cup of hot water or hot milk is then added, and the mixture is agitated for a few moments with the *molinillo* (swizzle-stick of the West Indies), which dissolves the chocolate thoroughly and produces a foam. The liquid is then poured into a cup and is ready for drinking.

Another beverage found in northern Guatemala is *pinol*. This is less common than *batido*, but like the latter appears to be of ancient origin. In character it is more nearly comparable to chocolate than to *batido*; it is not a ceremonial drink, like the latter, but a food drink taken as a substantial part of the meal. It is said to have been used extensively before the introduction of coffee into Guatemala, and at the present day is more common in the lowlands along the upper Usumacinta and its tributaries, where coffee does not thrive, than in the highlands around Cobán where the latter product is abundant. It is considered by the Indians an especially good article of diet for nursing mothers, producing an abundant supply of milk.

Pinol is made as follows: Two pounds of maize (Indian corn) and one-half pound of cacao are toasted over a charcoal fire (the maize until it "pops") and are then ground very finely on the *kaa*, or metate. A small quantity of cinnamon, a small quantity of anise, and sometimes *orejuela* are added for seasoning. White or brown sugar may be added, either at the time the other ingredients are ground together, or when the hot beverage is prepared.

For use, two to four teaspoonfuls of the powder are added to a cup of hot water. The resulting drink much resembles chocolate in consistency and taste, but is of somewhat gritty character, due to the presence of the ground maize (cornmeal). It is entirely unlike *batido*, and undoubtedly would be preferred by the average European.

A variation of *pinol*, called *pozol*, is used along the Rio Negro and the Rio de la Pasión, tributaries of the Usumacinta. This is

made from the *masa* or paste used for tortillas, prepared by treating maize with lye and grinding it upon the stone: for *pozol*, this is mixed with ground cacao in the proportion of four ounces of cacao to about three pounds of paste. The mass is then made into a ball and is carried upon long journeys to furnish a drink when coffee is lacking. A little of the paste is added to a cup of hot water sweetened with brown sugar.

Usually the traveler in Guatemala sees a large glass jar filled with brick-red powder standing upon the counter in every *cantina* (rum shop) which he passes. This is *tiste*, a peculiar preparation which furnishes a cold *refresco* for the tired traveler and is very popular among the natives, especially those of mixed blood,—the *ladino* class of Guatemala. A tablespoonful of the brick-red powder is placed in an earthenware jar; water is added, a little at a time, and the mixture is agitated with the *molinillo*. After a few moments the drink is poured out into a glass, where it appears as a brownish red liquid with half an inch of foam on the top. It is usually sold at four *reales* a glass ($1\frac{1}{4}$ cents U. S. currency). While cacao is one of its important ingredients, it does not have a pronounced chocolate flavor. It is rather insipid, in fact, and to one accustomed to more highly flavored beverages lacks "character," yet it is more palatable than most of the native *refrescos* dispensed along Guatemalan highways.

Tiste is not made by the Indians, so far as observed, although it is often consumed by them. Its manufacture is carried on by natives of mixed blood who keep the *cantinas* and small stands where drinks are sold. It is prepared in the following manner: Four pounds of white sugar are added to one pound of roasted cacao beans and half a pound of roasted rice. Two ounces of cinnamon are added to give flavor, and one ounce of ground *achiote* (*Bixa orellana*) to give the reddish color. A small quantity of vanilla may be added if desired. The ingredients are mixed together and ground to a fine powder, which is stored in glass jars until desired for use.

U. S. DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C.

THE FUTURE OF THE AMERICAN NEGRO

By GEORGE S. PAINTER

THE race problem has been long an aggravating one in the United States, and tends to become even more pronouncedly so. Ever since slavery was instituted among us its evil consequences have acted upon both the black and white races with ever deepening complications. We have abolished slavery as an institution and survived a civil war in so doing, but the perils of race hatred and antipathy remain with us and local race warfare threatens us now and again. In many parts of the South in particular, where the negroes are most numerous, the situation occasionally becomes one of grave social and political concern.

Although it is impossible ever to make with certainty any prophecy concerning the future in relation to human affairs, it is nevertheless always interesting to observe those great natural laws operative among men, calculate the goal towards which they move, and seek to discern in some measure if possible the "divinity that shapes our ends." In the evolution of the American negro several forces are working in an unique way which are of special interest to the anthropologist as well as to the sociologist. It is our purpose to examine briefly the more potent of these factors.

I. ADAPTATION TO CIVILIZATION

It is a normal law of life that development should be gradual and contiguous. Wherever this law is violated, in any fundamental way, it is pretty sure to result in comparative degeneration of the species. The hothouse plant may bring more immediate and brilliant results, because of forced and abnormal conditions, but at the expense of hardiness and vitality. It is proverbially true that primitive peoples can not stand an enforced civilization. No better example of this can be cited than that of the American Indians, who, even on their own soil, have resisted civil conditions unto death.

Indeed they seem almost incapable of existence apart from their primitive, normal barbarism. Even where they have, in small numbers, settled to the arts of civilization, this is usually of such crude order and so much of their native habits and traditions are carried into it that they can at best be said to be only partially civilized. Many proud tribes have perished, one after another, before the march of civilization, and the remainder, at times, seem surely destined to ultimate extinction.

The abrupt uprooting and transplanting of the African negroes from their native soil and clime, with their barbarous habits of life, into a totally different environment in America, with the conditions of a highly developed civilization thrust upon them in the bonds of slavery, was an unique experiment in the history of mankind, certainly unparalleled in the elements that characterized it. So much the more, therefore, is it of special interest. It certainly did great violence to the gradual and contiguous development of the negro; it remains to be seen whether it has resulted in his degeneracy.

Many circumstances were evidently favorable to aid the negro in his adjustment to the new civil conditions. As to whether the climatic changes were favorable or unfavorable to him we are unable to say; there must at least have been a readjustment or acclimatization. But the negro, as a slave, had a peculiar advantage over the Indian, in that he fell at once under the tutelage and compelling hand of the master race, already highly schooled in civilization. Thus he was at once forced into a certain conformity with the fundamentals of a higher life and its allied habits were speedily acquired. Under slavery also he was more comfortably clothed and systematically fed than he had ever been in his native country. It was a commercial asset to the master, who was interested in the best possible returns from his slaves, to thus whole-somely care for them. Protection from inclemency of weather and the possibility of disease were better ordered in their behalf than ever before, and all the arts of civil life were immediately opened to them under practiced hands. All this however existed only under the most favorable phases of slavery; as commercialism

found it more and more profitable the slaves were often sacrificed to greed, inhuman and vicious practices arose, and the very existence of the race became menaced.

When slavery was abolished and the negroes became freemen they were compelled to struggle for their existence on their own initiative in competition with the white man in his native country, and in these adverse circumstances new difficulties arose for them. It was only natural for them to tend to fall back into the crude, unsanitary forms of living which were native to them and which were even more deleterious in effects because of strange and unaccustomed surroundings. The vices of civilization have also taken on emphatic forms among them, as is always the case with more primitive peoples, and are correspondingly more deadly. Being thus left to their own instincts, traditions, and ignorance, they have been the pathetic subjects of their own follies as well as the prey for the cunning and craft of their wily white brother. Having been dependents they suddenly became independent and must make their way. In this connection we need also to observe the negro's disadvantage in the competitive struggle with the superior race. Only in the most menial service has he anything like an even chance with the white man, and even this is an apparently diminishing one.

That the negroes are capable, in their present state, of a high degree of education, culture and civilization, is already demonstrated; but that they have constitutionally weakened is not easy to show, for the reason that we have little or no comparative data from which to estimate. One thing is certain, namely, that the negroes have a much greater rate of mortality than the white people, and this must result in a diminishing proportion of black population. It is very significant that this proportion of negro population has constantly diminished decade by decade.

Vital statistics are very unsatisfactory, as a rule, because of the impossibility of obtaining accurate returns of data for calculation. Results can be only comparative and approximate, but so far as they go they are the best means of determining the social drift. From the Census of 1900 it may be seen that the increase

of population in the United States for the previous twenty years had been: negroes 34.2 per cent.; whites 53.9 per cent. In the Census of 1910 the reported increase of population for the preceding ten years was: negroes 11.2 per cent.; whites 22.3 per cent. This would indicate that the proportionate increase of the white race is practically *twice* that of the negro race.

The increase of population in the southern states, where the negro population is greatest, in the twenty years preceding 1900, was: negroes 33.1 per cent.; whites 56.5 per cent. In the Census of 1910, the increase of population for the preceding ten years was: negroes 10.4; whites 24.3 per cent. This would show that the white population in these states increased proportionately about two and one-third times as much as the negro population, whereas in the twenty years preceding 1900 the per cent. of increase of the whites had been only about seven-tenths greater than that of the negroes.

Vital statistics are very defective, especially in affording information in relation to the colored race, because of the small proportion of this population found in the registration area, that is, where records of births, deaths, etc., are kept. In 1900 this area included somewhat less than one half of the total population of the United States, and from it the Census Bureau received returns only for deaths. Furthermore only 13.4 per cent. of the negro population was in the registration area. But this registration has been extended until in 1910 the negro population included within the area was 19.7 per cent., and in 1915 it was increased to 30.4 per cent. Calculating the death-rate by the number of deaths occurring in a year to each 1,000 persons living in the middle of that year, we reach the result that the death-rate of the non-Caucasians in 1890 was 34.4, and in 1900 it was 34.2; of the whites, in 1890 it was 19.5, and in 1900, 17.4. In 1910 the death-rate of the negro race was 25.5, and of the white race 14.6; of the other races no rate is given. These figures indicate that there has been a decline in the death-rate of each race in recent years, but that the decline has been less rapid among the negroes than among the whites, and that the death rate of the negroes at the present time lacks but two-tenths of being double that of the white race.

Confining our consideration to the southern states, where the white population increased in the last ten years about two and one-third times faster than the negro population, and where the death-rate is nearly twice as great among the negroes as among the whites, we reach the significant conclusion that the relative proportion of negroes to the total population is becoming ever less and less in the succeeding years.

II. ILLICIT AMALGAMATION

Marriages between the blacks and whites are very rare. But ever since the negroes were first brought to this country as slaves there has been a constant illicit amalgamation of the races. So extensive and widespread has this been that at the present time the proportion of full-blood negroes in the United States is impossible to determine. This illicit amalgamation of the races has been confined almost wholly to the lower and more vicious classes. But nature is no respecter of persons. In the statistics of the matter, any one having the slightest admixture of black blood in him is classed as negro: blacks are all those having three-fourths black blood; mulatto, those having from three-eighths to five-eighths black blood; quadroon, those having one-fourth black blood; and octoroon, those having one-eighth or any trace of black blood.

In proportion to the total population, the mulattos or mixed bloods have steadily increased from decade to decade. In 1850 the total mixed bloods or mulatto population in the United States, in proportion to the negro, was 11.2 per cent.; in 1870 it was 12 per cent.; in 1890 it was 15.2 per cent.; and in 1910 it was 20.9 per cent. This ranges from 45.9 per cent. in Maine, where negroes are only two per cent. of the total population, to 16.1 per cent. in South Carolina, where negroes are 55.2 per cent. of the total population.

The tendency of this amalgamation is gradually to raise the percentage of white blood in the black race. The effect of this would seem to be that, since the longevity or hardiness of the white race has appeared to be evident, the white blood would predominate more and more among the negroes and the black blood become pro-

portionately submerged. This would mean that those negroes having a mixture of white blood, other things being equal, would have a hardiness, longevity and fitness for the struggle for existence superior to the pure-blood negro. With the present proportion of mulatto to full-blood negroes this survival of the lighter mixed-bloods over their blacker fellows can not be clearly discerned, if at all it may be determined; but that this general law of nature is working out its inevitable ends seems without doubt.

Furthermore the social condition, that is, the opportunity for livelihood and wholesome existence, would also be easier for the mulattos. The lighter colored of the race would doubtless more readily find favorable employment and thereby surer protection and means of self-preservation in the severe struggle of life which must eliminate many. Both biological and sociological laws thus tend to blend out the darker shades and substitute the lighter shades of negroes as the ages go by.

There are many who think that the amalgamation of the races is a menace to both the black and white people. But such menace, if it exist, is apparently sociological and political more than biological. It is without doubt true that amalgamation is destined to bring more complicated social relations into operation. It is calculated to intensify race bitterness, for the time being at least; but in the deeper wisdom of the laws of nature it may indeed be the final solution of this perplexing problem, which to our human thinking seems almost insoluble. The social difficulty may be intensified by the fact that the man with only one-eighth negro blood will not so readily submit to racial inequality or the slights and perhaps injustices inflicted upon him by the white race; whereas the blacker negro may, with a sort of instinct, recognize the superiority of the white man and be willing to freely render due deference thereto. A relation of servility will not be easy for a comparatively white negro to men who perhaps have little lighter skin than himself. The white race, however, is disposed to make the same demands of all who have any negro blood whatsoever. Hence more social friction is liable to arise from the amalgamating process than from any other. But for problems of this character there is only

one course that leads to solution, namely, a deeper sense of humanity, justice and sweet reasonableness on the part of both races. Righteousness and benevolence, here as everywhere, are the only panacea.

Illicit amalgamation of the races is condemned by all right thinking men. But the hated process goes on in spite of all protest. Accordingly we have to face the question and seek to understand the goal to which this factor is bearing us. If we can discern the end at all, it seems that nature's law as operative among us is bent upon a gradual elimination of color demarcation; its method, apparently, is to gradually dissipate the darker shades and substitute the lighter in human beings. This process, however, is dilatory, and only the ages to come can determine the final result. We are in a current which carries us forward in spite of ourselves; it only remains for us to direct the forces about us for the greatest possible good to all.

III. NATURAL SELECTION

By the principle of natural selection in this relation we mean the disposition of the negro race to naturally propagate along lines that tend to a lightening of their color. The superiority of the white race has been enforced upon the consciousness of the black race for generations, and from every angle of his experience. By the white man he was fed and led, corrected and directed; from him came the issues of life and death. The tradition of the black man, therefore, makes him look up to the white man somewhat as he does to his God, or at least as a child does to its father. Students of the subject tell us that the negro's dream of heaven is that it is a place where he himself will be white. He has come to think that all his griefs and burdens are because he is black, and that they will cease when he becomes white in the hereafter. There is no mistaking that there is some such ruling passion, a dumb striving of the race for this hoped-for heaven, and that it is a stronger impelling motive than we are accustomed to think. A southern lady said to her old servant, who was particularly tidy in her person: "Never mind, aunty, when you get to heaven you'll be as white as any of us." In transports of rapture at the thought of its realization, she answered: "Gawd bress de lips dat says so."

It is reasonable, then, to suppose that this passionate longing to be delivered from what they have thought to be the curse of their color would make the negroes tend to grasp at the slightest straw which might help to bring that desired good to present realization. The tendency, therefore, would seem to be natural for the lighter colored among them to mate with the lighter; and thus more and more there would be the tendency to preserve the strain of white blood in the race, and even the lighter strain of the negro blood. There would be a disposition of the whiter of the mulattos and mixed-bloods to select and mate with the lighter of their kind. This also would tend to gradually eliminate the blacker of the race. Of course circumstances will make all kinds of exceptions to this rule, but the principle would seem to hold nevertheless in a large way. It has even been suggested now and again that some negro women prefer to bear children of white men rather than of black. Of this there can be no confirmation. But if it be so, it would only exemplify the principle of natural selection and the general longing that their offspring might be whiter than themselves—a step in bringing to pass their desire of becoming white at last.

It is evident that this principle of natural selection can not result in any rapid transformation of the negro race; but in the ages to come it would seem to be one of the most potent factors working for the ultimate outcome. The subtle forces of nature take up the unnoticed and imperceptible factors of life into its processes and in the end bring about the most astonishing results, silently and invisibly. That such forces of evolution are operative here as everywhere can not be denied, and the tendency seems to be evident that by a process of natural selection the darker of the negro race will gradually be more and more submerged and the lighter of the race preserved. Consequently the developing movement of the negro race seems to be in the direction of a blending to ever lighter and lighter shades.

This principle of natural selection is more effective in its results than we have been accustomed to think. We are perhaps accustomed to notice the exceptions to the rule rather than the operation of the principle itself. But the principle is as dominant and potent

in this sphere of operation as in any other realm of nature, and it is certain that the results will be even more pronounced because of the ruling passion which controls it. Combining, then, the results of natural selection with those of illicit amalgamation and the higher rate of mortality of the negro race, the outcome seems to be conclusive that the whiter element must survive the blacker in the struggle for existence, and that the negro race will tend to become lighter as the ages go by.

IV. ENVIRONMENT

There can be no doubt that the environment, that is, climatic condition, food products, and general geographic conditions, along with hereditary tendencies, traditions and customs, account for the articulate peculiarities of the various races. Featural characteristics and physiological differentiations may best be accounted for by heredity and a certain racial inertia. But when we ask for the cause of the different colors in the various races, the answer is not so evident. The old assumption that some peculiar characteristics of the several sons of Noah accounts for the differences of race and color in their descendants is to be regarded as wholly mythologic. The only scientific explanation must be found in the influence of the environment on human nature. The soil conditions which determine food products are doubtless a factor, but it is probable that zone and general climatic, geographic and vital conditions are the more dominant factors so far as color is concerned. Animals of the polar regions become white in adjustment to their snowy surroundings; and the northern peoples, as a rule, are whiter than those of more southern zones, where a darker shading is perceptible as we approach the equator.

Environmental and climatic conditions have been working toward the present color results throughout the thousands of years of human history. The reason that America produced a red or bronze race, and Africa a black race, and Asia a brown or yellow race, must surely be found in the peculiarity of each of these continents, rather than in any original innate color of the respective natives. What these peculiar conditions are is for science to deter-

mine. We know that the natives of equatorial Africa are black, and even the peoples of extreme southern Europe tend distinctly to a swarthy complexion, as the Spaniard, the Italian and Greek. Experience also demonstrates that if the white man dwells in Africa continuously for many years he tends to take on a decidedly dark color. It is, therefore, easy to understand what must have been the result in the case of the natives who have been there as a race throughout the centuries. It would seem to be properly scientific to conclude that the African negro is black because of the peculiar climatic and other environment in its age-long effect.

If the foregoing conclusion be correct, then the inevitable prediction must be that the tendency of the African negro in America will be to become lighter in color, as time goes by, while the whites, contrarily, will tend to become a shade darker. Whether the negroes have actually become lighter in color by means of climatic conditions in their short history in this country is problematical, but there are some evidences to that effect. At least if color be a matter of environmental effect, then it is but natural to expect that the tendency would be to find the negro becoming lighter in America, and that in time he might be expected to become not perceptibly darker than the natives of the Philippine Islands or the Spaniards of Cuba. Such a final result, to be sure, could be expected only as the gradual evolution of the centuries, but in view of the processes operative it seems not too much to expect in the end.

From an investigation of the forces at work, therefore, the indications seem to be that: because of the far lower rate of propagation and much greater rate of mortality among the negroes as compared with the whites, their relative proportion to the total population of the United States is becoming ever less; because of the constant process of illicit amalgamation, there is a continual increased proportion of white blood infused into the black race, which tends to diminish the sharpness of color distinction; because of the process of natural selection by which the lighter colored of the black race tend to survive, the darker colored tend to be finally eliminated; and because of the American climatic and environmental conditions, the tendency is for this to gradually lighten the color of the black

race. All these forces, so far as we can discern, seem to be working together for the blending out of the extreme color of the negro race in America. In other words, nature seems to be determined to eliminate the extremes of color demarcation among us. "The mills of the gods grind slow," and such results are not to be wrought out in a generation, but so far as we may judge the distant outcome seems to be rather surely indicated. And if such should be the case, it would evidently be the solution of many a racial difficulty in the coming history of our civilization. Deeper than all our philosophy and statesmanship are the great laws of human life which take up even the neglected threads, unnoticed by us, and weave out of them a web of destiny whose designs and colorings transcend our knowledge, but which we believe must be wise and beneficent.

NEW YORK STATE COLLEGE FOR TEACHERS,
ALBANY, NEW YORK.

GUARANI KINSHIP TERMS AS INDEX OF SOCIAL ORGANIZATION

By SAMUEL A. LAFONE QUEVEDO

THE Indians called Guaraní by the Spaniards about the River Plate, Tupí by the Brazilians and Chiriguano in certain parts of Peru, Bolivia, and Argentina, but by themselves Abá, occupied most of the Atlantic coast between the Amazon river and the Brazilian state of Santa Catalina, also a considerable stretch of the Paraná river and its Delta between the Uruguayan Colonia and the old fort of Sebastian Cabot, at the junction of the Carcarañá river with one of the channels of the Paraná.

Peter Martyr of Angleria calls them "Caribs," because they killed and ate Juan Diaz de Solis and several of his men somewhere near the island of Martin Garcia (Book x, Ch. III) 1516.

Magellan on his voyage of discovery (1519) reached Brazil, and Pigafetta gives an amusing account of the cannibal Tupí Indians of that region (*cf.* J. A. Robertson's edition, pp. 39, etc.). They entered the river Plate more or less in the wake of Juan Diaz de Solis' unfortunate expedition, and tried to get some information from a tall Indian whom Pigafetta calls a "Cannibal," but who by his stature must have been a Charrua, near neighbors of the anthropophagous Guaraní of that region. The expedition sailed south and made itself famous by discovering the straits of Magellan and putting the first girdle round the world.

We next come to a very curious unpublished document, part of a lengthy MS. in the British Museum (Royal MS. 18, Book xxviii ff., 82b-90); the author was Roger Barlow, who, with Henry Latimer, was sent out by their friend Robert Thorne in Sebastian Cabot's ill-starred expedition to the Moluccas; it started in 1526 and never got beyond the river Plate; but during the many months they were delayed in Pernambuco and Santa Catalina, Barlow picked up much curious information about the country and its

inhabitants, principally about the "Topys" of Brazil, by him also called "Tupys," who "eat one another"; not so other Indians that lived in the same region farther inland. He then goes on to tell us this:

And when the man diethe his next brother shal enherit all his wives and he taketh to him self suche of them as he listeth and the rest he geveth to his owne children and kynsolke or where it pleas him and lightlie the old men will have the yong womert and the yong men shall have the old women and we askyd them wherefore thei dyd so, for we thought it unmeete to se very old men have yong wenchies and to se yong boyes to have old women and thei said it was for this entent that the yong women coud no skylle of worlde and therefore thei be coupled with old men for that thei maie instructe or teache them how thei maie order ther house and in lykewise the yong men can not skylle of the worlde how to lyve and therfore thei geve them old women to instructe them, etc.

Here we have the levirate in full swing—described by an Englishman who voyaged as intelligently as any modern traveler, at the same time that he no doubt attended to his employer's business. These two men figure very often in the documents of that expedition.

Gabriel Soares de Souza in 1587 wrote or published his *Roteiro do Brasil*, which was reprinted in 1851 by the *Revista do Instituto Hist. e Geog. do Brazil*, Rio de Janeiro, vol. xiv. On pp. 316 or 317 we find the following account which I have turned into English from the original Portuguese.

It is the custom among the Tupinamba Indians that when a married man dies his eldest brother must marry the widow; but if the man happens not to have a brother, then the next of kin on the dead man's side must take her to wife. The brother of the widowed wife must marry her daughter, if she has one; if it happens that the widow lacks a brother, she must take for her husband the nearest blood relative of her mother; but if the latter is not willing to marry this niece of his, he will not suffer any other man to go near her, but later on will give her any husband he chooses.

The uncle, father's brother of the girl, must not marry his niece nor go near her if he minds, doing his duty by her, but he treats her as his own daughter and she in her turn obeys him as if he were her own father and so calls him after her father's death. If these maidens cannot claim any uncle, their own father's brother, they choose in his place the next of kin.¹ And all their relatives on the father's side, in whatever degree, they call "father," and they in their turn call

¹ Paternally of course.

her "daughter"; but she obeys her nearest relative always. In the same way grandchildren call the brother or cousin of their grandfather "grandfather," and these in their turn call the others "grandchildren," and so do they also the latter's "children," and granddaughters of their brothers, and cousins. On the mother's side also the brothers and cousins call their nephews, "sons," and these call their uncles "fathers"; but they never hold them in such high respect as when the uncles are on the father's side.

These quotations are of the very greatest importance because they refer to marriage customs early and late in the sixteenth century among the Guaraní or Abá nations; all this indirectly is confirmed by Vasconcellos in the following century, for the Tupí, and by Breton for the French Caraibi Indians of the Antilles. Both authors expressly state that there was no restriction as to intermarriage on the mother's side; but do not include that between parents and children in our sense of the words.

My interpretation of the Tupí "levirate" is this—a development of a previous polyandry in which the wife of one brother was common to all the others, as in the "sororate"¹; originally the husband of a wife had a right to all his sisters-in-law first simultaneously or later on successively, itself a later degeneration of the fact that all the men were occasional husbands of all the women, or inversely, not promiscuously, but periodically, not salaciously but tribally or nationally. The survivals of all this were—the old saturnalia, under whatever name we know them, preserved under that of "carnibal," and Carnival itself as still practised in what we may call Indian Latin America—the Chaya of our Calchakee (*Calchaquí*) region with its Tincunacu, "Topamiento," or "Coming Together" rites and practices, including the time of the Algarroba harvest, camping out, and all that it means. "Saturnalia" have been christianized more than once in the world's history. Perhaps they were not more wicked when they were mere ritual *saturnalia* than now when they represent the *haut ton* manifestations of the Carnival festivities where they are still held.

In 1663 F. Simao de Vasconcellos, S. J., published his *Chronica da Companhia do Jesu do Estado do Brazil*. I use the Fernandes Lopes edition, Lisboa, 1865; this information is consequently some

¹ Husband's right to possess wife's sisters, in succession or otherwise.

hundred years later than the medium date of the two authors previously quoted: what the good missionary writes is important but not quite so explicit as the previous accounts.

As regards their intermarriages kinship is no obstacle in the female line, nay rather the sister's daughter is usually her maternal uncle's wife, or else the wife that was of his late brother.

The Portuguese phrase is rather obscure *a filha da irmaa he communmente a mulher do tio, ou a mulher que foi do irmao defunto*; the meaning is simply this: men usually marry a sister's daughter. Terms of kinship in America include all sorts of direct parallel or diagonal relationships. (Work cited, vol. I, pp. LXXXII, 133.)

As it is impossible to ignore a certain connection which exists ethnically between the Guaraní or Tupí stock and those of the Carib-Arawak Indians of the Lesser Antilles, it may not be amiss to notice the following words to be found in Father Raymond Breton's *Dicty Caraibe Francais* (1665), p. 11, Platzmann's Ed.

Those we call first cousins, children of a father's brothers, call themselves "brothers," and said brothers of the father are likewise called "fathers"; but the children of such brothers do not intermarry with one another, although they are quite ready to do so with the children of their father's sisters.

In p. 268 we find this further statement:

No sooner is a lassie born than she is destined to be the wife of some one *maternal* cousin.

All this seems to point to a time when the Guaraní and the Carib tribesman had a polyandrian right over all the women of the nation, tribe or clan, out of which he was at liberty to take a wife; this would be a simple inversion of the other arrangement by which all the sisters became the wives of one man either simultaneously or in succession.

As far as I have gone into the matter, both Guaraní and Carib Indians seem to be patrilineal, whereas the Arawaks are matrilineal; but the two former have the same disregard for any connubial taboo between maternal cousins, though with both the paternal kinship is a bar in the same degree.

From what precedes it follows that among Indians of the Guaraní or Abá stock men and women might marry certain blood

relations but not others, hence we deduce that kinship terms would be invented to establish a certain verbal register by means of which a man or woman could not have any doubt as to whom he or she might take for a wife or husband. The following example will show how easy it was to place the matrimonial taboo:

Non marriageable cousins

1. *Che-tutĩ-r-aĩ* vel *r-ayĩ*,
Cousins, children of maternal uncle.
2. *Che-r-ubĩ-r-aĩ* vel *r-ayĩ*,
Cousins, children of my paternal uncle.

Marriageable cousins

3. *Che-yayché mēmbĩ cuimbae*, vel *cuñã*
Cousins children of my aunt, father's sister.
4. *Che-cĩ mēmbĩ cuimbae*, vel, *cuñã*,
Cousins, children of my aunt, mother's younger sister.

In the above example we have four different ways of expressing our idea of cousin, which grow into eight because they divide into two groups of four, one of them for the male, the other for the female side, all of them easily explained, for each distinct term is a phrase and not a simple word. As it happens the Indian syntactical construction corresponds exactly, to the English and not to the Spanish form:

1. *Che-tu-tĩ-r-aĩ* (vel)-*ayĩ* (the "Uncle" maternal).¹
My-the-uncle's-son or daughter (the "Uncle" maternal).²
2. *Che-r-U-bĩ-r-aĩ* (vel)-*ayĩ* (the "Uncle" paternal).³
My-the-uncle's-son or daughter (the "Uncle" paternal).³
3. *Che-yayché mēmbĩ cuimbae* (vel) *cuñã* (the "Aunt" paternal).
My-aunt's-child-husband or wife (the "Aunt" paternal).³
4. *Che-cĩ mēmbĩ cuimbae* (vel) *cuñã* (the "Aunt" maternal).
My-aunt's-child-husband or wife (the "Aunt" maternal).

This sort of cross-cousinship table is of the greatest importance, because it contains most of the radical linguistic facts, which if

¹ *Tuti* is maternal uncle, with initial radical *t*, not a changeable prefix, as in *t-Ubĩ*-paternal uncle-, which in combination changes to *r-Ubĩ*.

² Both groups which ought not to intermarry *inter se*.

³ *Yayché* or *Yaiché*—cf. Ruiz. "Tesoro," f. 1872. Madrid 1639—or Platzmann's reproduction. Could intermarry *inter se*.

well understood will serve us for all subsequent kinship tables. The Guaraní or Tupí (*i*=ee) or Abá language is as full of allophylian elements as any of the other tongues of our or any continent; in this case the affinities are in the direction of Arawako-Carib and to that norm I submit my remarks.

Once for all I insist on this postulate, if kinship terms are allowed to be descriptive, and not capricious happy-go-lucky hits, they must be so in every sense, ethnic, sexual or whatever else accords with the circumstances of the case, actual or traditional.

SHORT VOCABULARY

1. *Che*—Pron. 1st person—"I" and "my." T and r—usual relative infixes ().
1. *Tʃ*—Complementary suffix, in this case determining male sex *quo* "uncle"; the maternity results from the first infix t.
2. *Bʃ*—Complementary suffix; this and the first relative infix r establish the male avuncular and paternal value.
- 1 and 2. *ĩ*—A peculiar vowel sound, which in truth has little or nothing in common with English i: it is more like the u in "hunt," or even the French *eu*. It has many meanings; for our purpose the best is "seed" e.g., "seed of Abraham."
- 1 and 2. *U*—The root vowel or sound for "father"—*Tʃ-ba* or *Tó-ba*, "uncle"—*t-U-ʃ*, *t-U-bʃ*—and all their derivatives. The absolute or abstract form of both words is that here set down; *che-r-U-bʃ* on the contrary is a relative construction, corresponding to the usual *Abá* rule: as I maintain that in *Abá* there is a strong strain of Arawako-Carib elements, it is quite comprehensible that the femininity of the "maternal uncle" in *Che-t-U-ʃ* should be contained in the relative infix -t-, *vice-r-* of the other example, especially since, in the two outside tongues here referred to, suffix -*ti* would be masculine, whereas prefix *t* on the contrary is feminine; the contrast of the two particles *t*- and -*ti* complete the idea of virility and "metavirility," to use Lucien Adam's terms. The whole scheme of *Abá* kinship terms hangs on this sound *U* and its sexogrammatical complements, therefore this long paragraph on fatherly, motherly and avuncular *U* is not out of place.
- 1 and 2. *Aʃ*—The word which determines cousinship as derived through a father's or mother's brother, i. e., not marriageable *inter se*; the word in itself means "son" say, "little one" or "seed" (i) of the stock (a) (cf. Ruiz Tes: f. 351). Full translation: "My maternal uncle's son (male seeded)."
- 1 and 2. *Aʃ* vel *T-aʃ*—"man's daughter or niece." This curious word determines the sex of the cousin; in itself it is the former word *Aʃ* opened to admit the *y* sound, thus *A-y-ʃ*—The Dakota Indians know what this intrusive *y* means and we are full of it in South America—Guayana is only a Guana

- or *Ua-na* nation with intrusive ethnic element *ya* to perturb the purity of the Arawak blood (cf. Ruiz Tes: f. 353).
- 2. *T-U-bʸ*, relative *r-U-bʸ*, general word for paternal uncle; the *bʸ* suffix fixes the lexical value of "uncle," by grading genealogically the fatherly *U*, and the cousinships male and female result from the filial values of the words *aʸ* and *a-y-ʸ*, who become nearest or next to brethren, by the parental value of *U* and the filial determinatives which complement it.

CONCLUSIONS

1. That cousins, children of uncles, whether paternal or maternal, may not intermarry, because "uncles" are equivalent to "fathers," and "cousins," their offspring, to brothers and sisters, because "children."

2. That this is a relic of a time when woman, alone or as a sisterhood, belonged to a household of a polyandric brotherhood—originally exogamous.

3. Abá and Carib Indians when we got to know them had become endogamous and patrilineal.

We come now to the second group, numbers 3 and 4, the "aunts" paternal and maternal, interesting in many ways. To begin with in the first couple the fatherly idea is contained in one and the same *U* in both cases, as the difference between paternal and maternal "uncle" is simply marked by complementary particles; but in the second couple the difference between paternal and maternal "aunt" is lexically radical—*Yayché* is paternal, *cʸʸ* maternal "aunt."¹

It would be premature to go afield for analogies in search of origins for the root sounds *ya* and *cʸ*, that will be done all in due time, but this fact is self-evident, the words for "uncle" presuppose ethnic identity, those for "aunt" a dual source; *ya* and *cʸ* are radically distinct and both American root and most important speech sounds.²

In this paper we must limit our research within the bounds of

¹ But it will be well to bear this linguistic fact in mind. In "paternal uncle" the radical sound is *U* of "father" graded by the *-bʸ* suffix to convert it into uncle; whereas in "maternal uncle" the root sound is *TU* and the *avuncular* particle *-ʸʸ*.

² After finishing this paper I disinterred from among my books Yves d' Evreux's excellent narrative on the Christian Mission in Marañon (1513). It is quite a revelation and out of it we may perhaps prove that *Aʸ* = *hai*—"mother."

the Abá *Tesoro*, bequeathed to us by Ruiz de Montoya. As in the first couple the words for "cousins" are really phrases descriptive of social organization, the key words being *yayché*, "paternal aunt"—and *cñ*—"maternal aunt" the other words explain how and why the complete phrase comes to mean "cousin."

Yaiché is easily analyzed thus—*yché* or *iché*—a suffix meaning "truly" (cf. Ruiz *Tes*: f. 173), and *ya* a kinship sound of vast significance in America, as may be seen in Dakota or Lakota,¹ to go no farther (cf. *Tes*: f. 1812). Let us grant that *ya* means "origin," then *yayché* or *yaiché* means "true origin," and consequently the word for "paternal aunt" includes the idea of "real stock blood, with a possible hint of *Ai* ancestry."²

Gñ or *cñ* is even more transparent as regards its etymological value. *Cñ* is the word for "mother" and the suffix—*ñ* a diminutive particle; the natural meaning then is "little mother," so that "maternal aunt" to the Indian's mind conveyed the idea of "little mother," and so we come to the second meaning of *yaiché* "great or lordly mother," for one of the principal values of *ya* is—"great or grand," as in *yara* (*ya-r-a*)—"he who is Lord."³

Let us study numbers 1, 2, 3 and 4 in this way and we cannot but notice the perfect grading between the four different kinds of "uncles" and "aunts": "uncles" are *males* consequently of the *U* blood; "aunts" are *females*, therefore of *ya* or *cñ* blood as may be, more or less outsiders. All these are connubial facts referable to old and obsolete social organizations.⁴

We pass on now to explain why phrases, numbers 3 and 4, mean paternally and maternally "aunt-cousins" if I may be allowed the expression, as the two former might be called "uncle-cousins."

¹ See *American Anthropologist*, N. S., vol. XVI, p. 96, "Oglala Lakota Kinship Terms." That page reads to me as if it were one stolen out of our own tongues.

² Later investigations show that *Ai* is the root word for "mother" all over South America and that it came from that earthly paradise the Antilles. In my second paper on Yves d' Evreux's work I shall have more to say on this point.

³ Yves d' Evreux's assertion that in 1613 *Ai* (*Hai*) was the word for "mother" among *Toba-yara* and *Topinambá* Indians of the Marañon region may involve much additional information.

⁴ The *U* blood may admit two subdivisions -*U* and *TU*- that "male," this "female."

To make lexical facts clearer the following is a short list of words—and their meanings which go to make up each phrase:

Mëmbi—"a woman's child of either sex"—cf. Tes., f. 2192 ().

Cuimbaé—"man (*vir*) or male" cf. *Ibid.* f. 105 ().

Cuñá—"woman, female, wife"—cf. *Ibid.*, f. 107 ().

It is very remarkable that in the former case the children of "uncles" were called "son" or "daughter" according to their sex, which of course converted them at once into "brother" or "sister" reciprocally; whereas in the present instance the children of "aunts" become at once "woman's-child male" and "woman's child female," that is to say, "tribal (possible) husband and wife," since the words *cuimbaé* and *cuñá* are, sexually speaking, "husband" and "wife" respectively, or say, "male" and "female"; not "son" or "daughter."

With these preliminary remarks we may at once pass on to translate each of the phrases 3 and 4:

- | | | |
|--|---|---|
| 3. <i>Che yayché mëmbi cuimbaé</i> (vel) <i>cuñá</i> | } | { "My cousin,"
father's sister's line. |
| My paternal aunt's mother-child male or female | | |
| 4. <i>Che cñ mëmbi cuimbaé</i> (vel) <i>cuñá</i> | } | { "My cousin,"
mother's sister's line. |
| My maternal aunt's mother-child male or female | | |

Note.—Number 3 and 4. The male ready (by tribal custom) to receive female and so inversely, in both cases.

Any writer who chooses to ignore the connubio-social organization of the Guarani-Tupi-Abá nations or tribes could not easily explain the lexical anomalies of this short paradigm. From our point of view all becomes as clear as daylight.

Pat or *t-U-ba*—Father. *Hat* or *cñ*—Mother.

A very natural question suggests itself to any casual reader—why I have begun with "uncles," "aunts" and "cousins" (male and female) and not with "father and "mother"? The answer is, because "uncleship" and "auntship" in primitive races is of more account than the paterno-filial relationship; therefore it is to this fact that we owe such works as Dr. W. H. R. Rivers's *Kinship and Social Organization*.

Pat—"father"—and *hat*—"mother"—are vocative terms of

respect, *U-ba* and *čl*, respectively, would be the usual words in conversation.¹

That *U* in *U-ba* is the root sound we at once infer, because we have it also in the word *U-bł*—"uncle"—so that what determines the difference between "father" and "uncle" is the couple of suffixes *-ba* and *-bł* respectively.

If we choose to allow that *U* is an original root sound, with the Guaraní meaning that we assign to it, there is no more to be said, because every nation has a perfect right to the speech it has inherited, invented or adopted; this attitude has to be taken into account because Dr. T. A. Martinez of Goya in Corrientes, Argentine Republic, has lately published a very remarkable book on Guaraní in which he upholds the idea that this tongue is a mother language in every sense of the word. He speaks Guaraní as a native and therefore has an intimate knowledge of many of its ins and outs; but I await his judgment after he shall have made as intimate an acquaintance with Carib and Arawak as with his own Guaraní.

My view of the case is quite another: the Abá stock is a medley of several others, and so is its language, though developed after its own particular fashion. At present we are only discussing kinship terms and so the proof of a common origin has to be confined to this line of the supposed kindred origin. Fortunately we have not far to go for our proofs:

Words for "Grandfather"

Abá or Guaraní-Tupi	<i>T-Amō-ł</i> , or <i>Paiamōł</i>
Caribic	Breton, Antilles, <i>-Tamu-cu</i>
	Biet, Cayenne, <i>-Baba-tamu-ssi</i>
	Venezuela, <i>-Tamor</i>

If we consider that *Amō* is "kinship," "relative" and *Mł*, "distant relative," both words compared with *Amāndá* (cf. *Tes*: f. 332) we shall at once convince ourselves of the ethnic value of these roots. It would be well to consult Im Thurn's *Among the Indians of Guiana*, p. 305; there the full value of the "grandfatherly" sense of the word *Tamu* is established; the variant *Tamo* is the

¹ *Hał* or *gł*. Yves d' Evreux's vocabularies seem to point to *Ał* ((*h*) *Ał*) as the older form.

Cumaná form. The prefix *t* is a particle in Carib, as well as in Abá or Tupí-Guaraní.

As this word for "grandfather" is general in Abá, a very natural fact since all the dialects keep very closely together lexically, vast geographical intervals notwithstanding, and general also in Carib, which is also widespread, though not with anything like the lexical uniformity of language, we may safely assume the common ethnic origin of this important word, but we have yet another proof or link in the chain.

The Abá or Guaraní word for "grandmother" is *ya-r-i-i*, which takes us back to *yayché* or *ya-iché*—"aunt" or "father's sister." Both *ya-r-i-i* and *t-amó-i* end in the ancestral or the acute *i*, which reappears in the other two *paí* and *haí*, "father" and "mother" respectively. The combination *hai-ya-r-i-i* means "mother-grandmother."¹ *Pat-r-amó-i* is the name they give to their grandfather or any old person, and *pai-r-U-bí* that for "uncle" or "old men." To deduce from this that *p-aí* and *h-aí* contain the idea of ancestral fathers and mothers of an old race, and as both Abá and Carib Indians seem to have had a common grandfather, that old stock we must seek among the extinct *Aí* of the Antilles. The English Chaco Missionary, R. H. Hunt, says his Lengua-Mascoy Indians call the Guaycurú-Toba tribes *A-i*, and their near neighbors, the *Vejos* nation, calls itself *A-i-yo*.² As *p-* and *h-* in *p-aí* and *h-aí* are simple prefixes it follows that with *p-* we got an *Aí* ancestor, and with *h-* an *Aí* ancestress: in the case of *car-aí* we have the meaning of a sort of cultural hero, equivalent to *paye*—"wizard"—a word in which *p-* reappears as a prefix. *Baba* is "father" in Carib, which in the Galibi dialect of Cayenne becomes *papa*. The name *Car-aí-bi* is represented by many native forms: the Arawak call them *Calina*, among themselves they are *Cal-li-na-go*²—"le veritable nom de nos *Caraibes*" (Breton, p. 105); womenkind called them *Cal-li-po-nam*.

Important as the *aí* clue may turn out to be, we have the word *p-Ai-r-U-bí* in which the two root sounds *aí* and *U* are combined as

¹ See note, p. 427.

² 30 bis.

linguistic and ethnic facts —*man of old* and that through the ideas of "father" and "uncle," two of the most important factors in ancient Indian social organization.

The accompanying table contains all the combinations of the *U* radical vowel; it mostly explains itself and any doubt may be cleared up by reference to the original works, Ruiz de Montoya's *Vocabulary* and *Tesoro*, Platzmann's Edition. The former is paged, the latter foliated, hence the difference "p" or "f"; the second side is marked thus fx³. A peep into the *Tesoro* will make the reader thankful for my not sending him to search with an "*in voce*."

In the foregoing table of *U* terms it is quite clear that they are all derived from the same common root *U*, all initial *t*'s are articular, which in this case, as in so many others, change into *r* when combined with first and second person pronouns. In the third person they either remain as *t* or change into *g* or some other analogous particle; this *g* is very likely a modified *c*, it forms the so-called possessive or genitive case. *T* and *r* are constantly used in combination and in a way which seems to us redundant, in English, but in Spanish they would not be quite so, as still in the Lord's prayer, where we find the archaic forms *el tu reino* and *el tu nombre*.

It rather seems a surprise that our so often quoted text Ruiz de Montoya should not have given the Spanish equivalent for *atł*—"wife"—except in an indirect form, for instance in *t-U-b-atł*—"stepmother"—because "a father's wife," since "own mother" would be *cł*. "Step-father" is *cł-me*, because literally it means "mother's husband," and *cł ł* is man's word for "aunt"—his mother's elder sister, but the younger would be *cł-ł-quł*. This value of the suffix *ł* makes it probable that *t-U-bł*; "uncle"—"father's brother"—may have to be analyzed thus *t-UB-ł*: because according to Ruiz the word for "father" does include a latent sound.

Ruiz de Montoya, S. J., in 1640 published as part of his *Catechism*, a most important index of kinship terms for use in their missions, and I send a copy with the Spanish renderings turned into English. It will be found most useful. The church of Rome for some reason or another had very strict connubial regulations about

marriages between relatives and the forbidden degrees extended much beyond those set down in the Church of England. The taboo could be very much reduced by special licence or "dispensation," but without this preliminary a marriage was null and void. As a necessary consequence Roman Catholic missionaries were very careful to collect all the necessary information, hence all they have left us on this valuable branch of their subject; as most of the terms are descriptive, we get just what we want and more, since we not only fix kith and kin, but also often ethnic origin as well.

Kinship terms in Guarani are descriptive also in an ethnic sense. We have a very convincing example, which comes down to us from the middle of the sixteenth century, written by Soares de Souza in his *Roteiro do Brazil*, pp. 93 and 94, chap. LVIII, where he describes the Indians called *T-Amo-yo*:

These *Tamoyos* were lords of the whole coast from the river and cape of Santo Tomé to the Angra dos Reis (central point Rio Janeiro), whence they were hurled back to the primeval wilds and there they now live. They are a tall and well built race of men, brave and warlike, foes of all other nations, *T-Upinambas* only excepted, whose *kinsfolk* they claim to be, and their speech very much the same, as are also their manners and their customs, both neighbours and good friends. Their enemies are the Guaitacazes, neighbours as was said before, with whom they are at war, killing and eating one another. On the side of St. Vicent their neighbours are the Uayanazes, with whom they also carry on a merciless war.

The whole chapter is of very great interest, but for our purpose the name of *T-Amo-yo* suffices, because if they claimed to be kinsfolk of the Aba-Tupi, for the reasons stated in the passage quoted it is quite clear that the fact was established by the very name given to them by their friends and co-kinsfolk the *T-Upi-nambás*. The particle *yo* is of mutual reciprocity, our *co* prefix, therefore the word as it stands means "co-grandfather." See Ruiz, Tes., ff. 196² and 197; the whole series is most illuminating.

Yo is an affix which may be prefixed or suffixed, also infix; in the case of *yo-aí-r-e*—"nephews *inter se*: offspring of two brothers or of two sisters"—we have a very good example of descriptiveness—"co-children"—that is, "cousins."

We are too much tempted to undervalue the psychological worth

of Indian mentality and yet when a Peruvian called a turtle *rumi ampatu*—"a stone toad"—a good deal of natural history knowledge must have been involved to be able to work out such a connection in the natural history of both reptiles, for the name is most apt in every sense.

In the accompanying table we have a formidable array of *U*-words as ideologues serving to form names meaning "father" or "uncle,"¹ perhaps in inverse order as to kinship importance. This confusion between the ideas of "father" and "uncle" must have much to do with an exogamous custom between two nations, in the one, patrilineal, all the men would be "fathers" and "uncles" of all the offspring and their children nationally "brothers" and "sisters" for they all would be of *U*-blood; the women as outsiders¹ would not be of any blood in particular, hence the rule that while paternal cousins could not intermarry those of maternal origin could, because their blood was of no account. The widow was the heirloom of her brother-in-law, but her daughter passed over to her mother's brother, as his inheritance.

When my original *U* table was prepared one very curious and valuable ethnic name was overlooked, that of *Tobayara*—probably because of the *O* instead of *u*; but as Roger Barlow more than a century before called his Abá Indians Topy and Tupy, vowels easily and usually confounded, I restore or add the find to the Tupi list reproducing Vasconcel-los account of this branch of the Abá stock.

Tobayaras are the principal Indians of Brazil and hold themselves to be the first inhabitants and lords of the land. The proof of all this is the name they adopted as theirs; because *yara* means "lords" and *toba*—"face," that is to say that they are lords of the "face" of the land, or say "front" of their backcountry.

He goes on to tell us some fanciful interpretations of the term *Tobayara*, all of them in the sense of *toba*—"face"—and then finishes the paragraph with this sensible remark or commentary on the words "lords of the land of Bahia":

¹ 36 bis. Because of the *Tu* and not of *U* blood, that is to say of a feminine and not masculine stock. The *Tu* children would not of course be intermarriageable *inter se*, because *AyMu* or tribal children would rank as sons and daughters, *i.e.*, brethren, *inter se* also.

Sooth to say, as such they were always held in great repute by all the other Indians, quite the first and of great authority among them, because brave and always trustworthy. P. XVI.

In the *U* table they take their place with the *T-U-ba*, "fathers," *T-U-bi* or *T-TU-bi*, "uncles," *T-U-bi-chá*, "great chief," etc., all derived from the great root vowel *U*.

All American kindred terms in *U* are eminently descriptive and also of course sexually so, but with that part of our subject at present we are not concerned; it must have its turn later on, because to ignore it is to imagine that the Indian who formed his own language did not know what he was about. I have lived for half a century and more among Indian descendants of the Calchakee (*Calchaqui*), Peruvian and other Pacific cultures, with many of their rites and customs christianized, but psychologically pagan still, with many place names as salaciously improper as it is possible for them to be, and yet even English ladies living there use them every day. We may be quite certain that if we knew what our kinship terms really mean we should fly for refuge to some others less descriptive. But at present I only respond to Dr. R. H. Lowie's appeal:

In the first place, it is to be hoped that carefully prepared records of kinship nomenclature will begin to come in from all parts of the world. . . . The correlation of these terminologies with concomitant social customs and organization will henceforth become a duty . . . and may lead to a definite knowledge of the geographical distribution of distinctive features in terminology. . . . Finally, the intensive consideration of particular systems must bring to light many points of psychological interest, while comparison with the systems of culturally and linguistically related tribes will show what differences in nomenclature persist where differences in social organization are eliminated and linguistic differences minimized.¹

GUARANI

U AND *TU* KINSHIP TERMS

<i>Che-r-U-r-ayî</i>	my sister (father's daughter, man says).
(?) <i>t-U-beymbae</i>	brothers and sisters on f. and m. sides.
<i>Che-r-Ů-ba</i>	my father.
<i>t-Ů-ba</i>	his father ("pater ejus").
<i>g-Ů-ba</i>	his father ("pater suus").
<i>t-Ů-bété</i>	real father
<i>t-Ů-bángá</i>	step-father, godfather.

¹ *American Anthropologist*, vol. XVII, no. 2.

<i>Mē'nd-Ū-ba</i>	husband's father, f. in-law.
<i>Che-r-āŷ-Ū</i>	wife's father, f. in-law.
<i>yo-āŷ-Ū</i>	co-father-in-law.
<i>ŷ-Ū-ba-āŷ</i>	father's wife, stepmother, f. 399 ² .
<i>ŷ-Ū-bŷ</i>	uncle, father's brother, f. 400.
<i>Che-r-Ū-bŷ-r-āŷ</i>	1st cousin, paternal uncle's son.
<i>Che-r-Ū-bŷ-r-ayŷ</i>	1st cousin, paternal uncle's daughter.
<i>ŷ-Ū-ŷ</i>	uncle, mother's brother, f. 404 ² .
<i>Che-Ū-ŷ-r-āŷ</i>	1st cousin, maternal uncle's son.
<i>Che-ŷ-Ū-ŷ-r-ayŷ</i>	1st cousin, maternal uncle's daughter, f. 404 ² .
<i>Che-r-Ū-ya-og</i>	near kinsman (paternal), 401 ² .
<i>ŷ-Ū-ya-og-gue</i>	kinsman in ancient times, f. 255.
<i>ŷ-Ū-ya</i>	old age. See, <i>og-i-yd-r-a</i> , ff. 255 ² , 401.
<i>Che-r-Ū-r-amdŷ</i>	my father's grandfather, f. 353 ² .

OTHER DERIVED TERMS

<i>ŷ-U-pa</i>	God. f. 402.
<i>ŷ-U-bi-cha</i>	great in dignity or size, f. 400.
<i>ŷ-O-ba-ya-ra</i>	chief nation of the Aba Indians.
<i>ŷ-U-pi</i>	Guarani stock in Brazil.
<i>ŷ-U-pi-namba</i>	same stock (Aba) North of Rio de Janeiro.
<i>ŷ-U-pi-nikin</i>	same stock south of the former.
<i>ŷ-U-pi-nae</i>	1st invaders of Brazil of same stock.
<i>Membi-ra-U-pa</i>	woman's womb, voc. p. 80.
<i>Membi-r-i-U</i>	same as above, p. 80.
<i>U-g-i</i>	name given by a woman to all her sisters-in-law.

GUARANI LANGUAGE¹

KINSHIP TERMS

<i>Açiguêra</i>	brother and sister.
<i>Aguaçá</i>	leman of both sexes (in a bad sense).
<i>Amô'</i>	kinship, relative.
<i>And'</i>	of the same kith and kin.
<i>Cuñá</i>	female, true wife, sister and kinswoman, word used by men.
<i>Çŷ</i>	mother.
<i>Çŷ angá</i>	stepmother, also godmother.
<i>Çŷŷ</i>	"aunt," man's word for the elder sister of their mother.
<i>Çŷiqui</i>	"aunt," man's word for their mother's younger sister.
<i>Çimê'</i>	step-father.
<i>Haí</i>	true mother; also used to address elder women even when not their mother.
<i>Iaiché</i>	man's word for paternal aunt and female cousin. <i>Cheyay-ché mē'mbŷ.†</i> . <i>Ced mbáé</i> —"my cousins male and female"—say they all.

¹ Ruiz de Montoya, S. T., *Catechism*, Madrid, 1640.

- Yarrĩ*.....grandmother, maternal and paternal.
- Yetiépé*.....niece, man's word, for his sister's daughter; also cousin, his aunt's daughter.
- Cheyetiépé mē'*....."My son-in-law, husband of my niece"—man's speech which also does for the husband of his cousin, daughter of his aunt.
- Yoaĩré*.....nephews.
- Yoayĩ*.....niece, man's word for his brother's daughter.
- Yĩra*.....nephew or male cousin, children of sister or aunt (*su* doubtful).
- Yĩtaĩ*.....man's word for sister-in-law—wife of his nephew.
- Mará'nángá*.....blood relation.
- Mēm̃bĩ Cuĩmbaé*...woman's son, also nephew of her brother's or sister's son (Spanish not at all clear).
- Mēm̃bĩ raĩcé*.....woman's word for her son.
- Mēm̃bĩ raĩ*.....daughter-in-law, woman's word for son's wife.
- Mēnd*.....(man), male, husband.
- Mēndĩ*.....mother-in-law, woman's word for her husband's mother.
- Mēndúba*....."father-in-law," she calls her husband's father.
- Mēndĩbĩ*.....brother-in-law, her word for her husband's younger brother.
- Mēndĩ quēĩ*.....brother-in-law, if he is her husband's elder brother.
- Má*.....distant relation, also friend, with whom one has frequent intercourse.
- Nēm̃ot*.....(Cumbeça) concubine.
- Nēm̃mēmbĩ*.....nephews, woman's word for the children of her elder and younger sisters ("Hijos" in Spanish are "sons" and children).
- Pē'ng*.....woman's word for "nephew," when they are sons of her sisters.
- Pengañ*.....woman's word to address the wife of her nephew, son of a brother.
- Peá*.....son-in-law—woman's word used when she calls her daughter's or niece's husband.
- Quĩ pĩ*.....sister, woman's word, used by the elder when addressing her younger sister or niece.
- Quĩ pĩ'ĩ mē'*.....brother-in-law—elder sister's word when addressing her younger sister's husband.
- Quĩbĩ*.....own brother, so the sister calls her brother or her cousin.
- Quĩbĩ quĩ*.....sister's word when calling her younger brother.
- Taĩcé*.....man, kinsman of my own people; used only by women.
Che mēm̃bĩ raĩcé, my boy child. (In Spanish, my boy son.)
- Taĩ*.....man's word for son, for nephew, when a son of his brother or first cousin and also *semen virile*.

- Taitait* daughter-in-law, man's word for his son's wife, or for the wife of his nephew (son of his brother) or of his first cousin, *Cheraitate*.
- Taichó* mother-in-law—man's word: *Cheraycho*.
- Tayt* daughter and niece, man's word to signify his own daughter or that of any of his brothers.
- Taytrānga* goddaughter and stepdaughter—man's word.
- Tairāngá* godson and stepson.
- Taymā'nd* son-in-law—man's word for daughter's or niece's husband.
- Tā'* so the husband addresses his wife.
- Tamōi'* grandfather—general word used by all.
- Tatlu* man's word for his wife's father.
- Teyndi* sister and female cousin—man's word. *Chereindi*.
- Teyndimē'* brother-in-law,—man's word for his sister's husband.
- Tembí recó* so a man calls his wife. *Cherembireco*.
- Tembirecó riq* sister-in-law, elder sister of wife.
- Tembirecó quí pti* sister-in-law, wife's younger sister.
- Tembirecó membi* stepchild, man's word for his wife's children not begotten by him.
- Temt'artrō'* grandchildren, of both sexes—grandmother's word.
- Tibi* younger brother, so says his senior.
- Tibiquí* *idem*.
- Tibirait* sister-in-law, elder brother's word when addressing his younger brother's wife.
- Tiq̃i* elder brother, so the younger brother names him.
- Tiq̃* elder sister, younger sister's word.
- Tiq̃ mē'* brother-in-law, younger sister's word when she speaks to her elder sister's niece's husband.
- Tiq̃itrat* sister-in-law, man's word to call his elder brother's wife.
- Tobayá* so all, men and women, call their brothers and sisters-in-law.
- Túba* own father, father's uncle and cousin (male), as well as father's brother; word in use by all.
- Tubangá* godfather and stepfather.
- Tubí* general word for "uncle," father's brother.
- Tuyaoggué* blood relation.
- Tutí* uncle, general word used by all to name their mother's brother and her first cousin (male), the children also of her maternal uncle, who are their cousins.
- Tutí raí* first cousin (male).
- Tutí rayí* man's first cousin (female).
- Vq̃i* sister-in-law, woman's word, when naming her brother's wife.

FIRST DEGREE AS BETWEEN BROTHERS AND SISTERS

1. *Tĩ quẽĩ*.....elder brother.
2. *Tĩbĩ*.....younger brother.
3. *Tĩq̃*....."elder sister," says the younger.
4. *Quĩpĩĩ*....."younger sister," says the elder.
5. *Teyndĩ*....."sister," say the brothers.
1. *Cheriquẽĩ*.....my elder brother.
2. *Cherĩbĩ*.....my younger brother.
3. *Cherĩ q̃*.....says the younger to the elder sister.
4. *Chequĩ pĩĩ*.....says the elder to the younger sister.
5. *Cherẽndĩ*.....so the brothers call their sisters.

SECOND DEGREE AS BETWEEN COUSINS (MALE AND FEMALE)

1. *Tutĩ raĩ*.....male cousin on the male side.
2. *Tutĩ rayĩ*.....female cousin on the male side.
3. *Tubĩ raĩ*.....cousins (male) sons of uncle, father's brother.
4. *Tubĩ rayĩ*.....cousin, daughter of uncle.
5. *Yaichemẽ'mbĩ cuimbae'. + cuĩd'*.....cousins, sons or daughters of father's sister.
6. *Çĩ mẽ'mbĩ cuimbae'. 1. Cuĩd'*.....cousins, sons or daughters of aunt, mother's sister.
7. *Che tutĩ raĩ*.....cousin, son of uncle, mother's brother.
1. *Chetutĩ raĩ*.....my cousin (male) on the male side.
2. *Chetutĩ rayĩ*.....my cousin (female) on the male side.
3. *Cherubĩ raĩ*.....my cousin, son of my uncle.
4. *Cherubĩ rayĩ*.....my cousin, daughter of my uncle.
5. *Cheyai che membi cuimbae'. 1. cuĩd'*.....my cousins, sons or daughters of my aunt, father's sister.
6. *Cheçĩ ỹ membi cuimbae'. 1. Cuĩd'*.....my cousins, sons or daughters of my aunt, mother's sister.
7. *Che tutĩ raĩ*.....my cousin, son of my uncle, mother's brother.

NEPHEWS AND NIECES

1. *Tĩqĩ raĩ*.....nephew, son of an elder brother.
2. *Tĩqĩ rayĩ*.....niece—in the same way as the former.
3. *Teindĩ mẽ'mbĩ*.....nephews, sons of a sister.
4. *Yetĩpẽ*.....niece of a man, his sister's daughter, and first cousin (female) his aunt's daughter.
5. *Tĩq membi*.....niece, aunt's word.
6. *Quĩpĩĩ mẽ'mbĩ*.....idem.
7. *Pẽ'ngatĩ*.....niece, woman's word for her nephew's wife, when he is a brother's son.

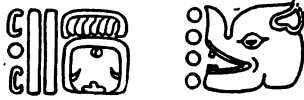
1. *Cherĩqĩ raĩ* my nephew, son of my elder brother.
2. *Cherĩqĩ rayĩ* my niece.
3. *Chereindĩ mēmbĩ* . . my nephews, sons (children?) of my sister.
4. *Cheyetipé* my niece, my sister's daughter and also my 1st cousin,
daughter of my aunt.
5. *Cherĩqĩ membĩ* my niece, so says the aunt.
6. *Chequitpĩ mēmbĩ* . . . *idem*.
7. *Chepengatĩ* my niece, because she is married to my nephew, my
brother's son.

THIRD GRADE, SECOND COUSINS

1. *Tuĩ raĩ raĩrera* second cousin (male) on the man's side.
2. *Tuĩ rayĩ mēmbĩ rera* second cousin (female) on the man's side.
3. *Tubĩ raĩ raĩ rera* second cousin (male) on the man's side.
4. *Tubĩ rayĩ mēmbĩ rera* cousin (male) on the mother's side.
5. *Yaiché mēmbĩ mēmbĩrera* cousins (female) on the mother's side.
6. *Çũ mēmbĩ membĩré* second cousins (female) on the mother's side.
7. *Tuĩ raĩ raĩre; yoaĩré* second cousins on the man's side.
1. *Chetuiĩ raĩ raĩrera* my second cousin, son's son of my uncle,
mother's brother.
2. *Chetuiĩ rayĩ mēmbĩrera* my second cousin, daughter's daughter of my
uncle, mother's brother.
3. *Cherubĩ raĩ raĩrera* my second cousin, son's son of my uncle,
father's brother.
4. *Cherubĩ rayĩ membĩ rera* my second cousin, daughter's daughter of my
uncle, father's brother.
5. *Cheyaiché mēmbĩ membĩrera* my second cousin daughter's daughter of my
aunt, father's sister.
6. *Cheçĩ ĩ mēmbĩ mēmbĩré* my second cousin, daughter's daughter of my
aunt, mother's elder sister.
7. *Chetuiĩ raĩ raĩré; yoaĩré* the nephew, son's son of my uncle, mother's
brother.

MUSEO DE LA PLATA,
ARGENTINE.

JOSEPH THOMPSON GOODMAN



SEPTEMBER 18, 1838—OCTOBER 1, 1917

BY SYLVANUS GRISWOLD MORLEY

IN the all-engulfing catastrophe of the European war, which before its conclusion taxed civilization to the uttermost resources in the struggle to escape annihilation, there passed unnoted many smaller events, that in other times would have called forth extended comment in the fields they severally concerned. One such was the death of Joseph Thompson Goodman, the Californian archaeologist, journalist and writer, and the discoverer and lifelong friend of Mark Twain, on October 1, 1917.

Although Mr. Goodman was more widely known through his literary and journalistic activities, especially in California, it is rather through his fundamental contributions to the decipherment of the Maya hieroglyphic writing that he will be remembered by the readers of the *American Anthropologist*, contributions indeed which have won for him in this complex field of investigation unique distinction as the American Champollion.

Mr. Goodman was born in Delaware county, New York, on September 18, 1838, but went to California with his father in the "fifties" as a boy of eighteen. He began his journalistic career as a typesetter for *The Golden Era* and before he was twenty-three he had become the owner and editor of *The Territorial Enterprise* of Virginia, Nevada, which, under his management, grew to be one of the most picturesque of the early western newspapers.

It was while he was editor of *The Enterprise* in 1861 that he "discovered" Mark Twain. One day an obscure correspondent of his newspaper by the name of Sam Clemens sent in a burlesque

report of a Fourth of July oration, which began "I was sired by the great American eagle and foaled by a Continental dam." Mr. Goodman gave the young, and we are told, ragged Missourian, responsible for this effusion, a position as reporter for *The Enterprise*, and it was under his guidance that our greatest American humorist began his brilliant career. This friendship lasted throughout Mark Twain's lifetime, and it is said he often called upon his former chief for advice and counsel in his writings.

In 1884 Mr. Goodman founded *The San Franciscan* which for its time was the most ambitious literary publication on the Pacific coast, both Mark Twain and Mr. Goodman being among the contributors to the first number.

In addition to his editorial duties Mr. Goodman found time to dip into other fields of literature occasionally. A series of historical sketches of early California and Nevada are particularly meritorious and his poem "The Death of Lincoln" enjoyed a wide-spread and well-merited popularity.

It was through fortunate mining investments on the Comstock that Mr. Goodman was enabled to turn his attention to scientific pursuits. After the Comstock days he purchased a large raisin vineyard near Fresno, California; and it was here about 1883 that he first began the study of the Maya hieroglyphic writing of Central America in the decipherment of which he later achieved such signal success.

He has vividly set forth his early struggles in this direction in his preface to *The Archaic Maya Inscriptions* where his discoveries are described in full:¹ the apparently insuperable obstacles in the way of reading the Maya characters, his many disappointments, false leads, illusory openings, setbacks, almost despair, and then finally the slender clue which led through a maze of calendric intricacies to ultimate success.

It was the *Relación* of Bishop Diego de Landa, Mr. Goodman tells us, written in 1566 but not brought to light until three centuries later, 1864, when the famous French antiquarian, the Abbe Brasseur

¹ *Biologia Centrali Americana, or Contributions to the Flora and Fauna of Central America.* Appendix to the Section on Archaeology, by J. T. Goodman. London, 1897.

de Bourbourg, found it in the archives of the Royal Academy of History at Madrid, which alone made possible the reading of the Maya hieroglyphic writing.

Following the meager statements concerning the ancient Maya graphic system therein contained, testing this hypothesis, rejecting that, formulating another, the well-known process of trial and error by means of which the scientist has conquered the unknown the world over, Mr. Goodman after twelve years of patient laborious research gradually won his way into the general meaning of the Maya writing and demonstrated that at least half of its two hundred odd characters deal with the counting of time in one phase or another, *i.e.*, chronological and astronomical data expressed in an arithmetic system and notation of great ingenuity and exceeding accuracy.

Like many another discovery, Mr. Goodman's priority in this field has been disputed, although the independent character of his researches and the credit due to independent discovery have never been challenged.

The first real advance in interpreting the Maya writing seems to have been made by Professor Ernst Förstemann of the Royal Library of Dresden, who in the decade from 1880-1890 published a number of studies on a Maya hieroglyphic manuscript in the Royal Library at Dresden. Using Landa's values for the day and month signs, Förstemann finally worked out the basic principles of Maya chronology, and in 1887 he announced the fundamental discovery that the long numbers of the Dresden Codex designate particular days in Maya history and are all counted from the same starting-point, a sort of Maya Birth of Christ as it were.

Curiously enough, Mr. Goodman working independently and upon different subject matter, *i.e.*, the inscriptions on the monuments, and without knowledge of Förstemann's researches duplicated the latter's remarkable discovery a little later 1883-1895. Between the two however, it is difficult to award priority in this matter. Förstemann made his discovery as early as the close of 1886 or early in 1887; Goodman on the other hand did not announce his results until eight years later, 1895, although he states

in the preface to his book that he had been at work on the inscriptions for twelve years prior to that date. Perhaps the fairest solution is to recognize the priority of Förstemann in the field of the manuscripts and that of Goodman in the field of monuments; this at least has the merit of dividing the credit, which each appears to have deserved equally.

In many ways however Goodman's achievement was even greater than that of Förstemann, and in the field of the inscriptions proper, *i.e.*, the texts engraved upon the monuments, his pre-eminence is beyond question. In addition to duplicating Förstemann's discovery of the nature of the Long Count and the determination of the starting-point of the Maya chronological system as the day 4 Ahau 8 Cumhu, he was the first to detect the existence of the so-called head variant numerals and to identify and make known their several values; and finally his crowning achievement was the compilation of his justly famous chronological tables: the archaic chronological calendar and the archaic annual calendar, the logarithmic shortcuts of Maya arithmetic without which the decipherment of Maya dates becomes a series of laborious calculations. Although more than twenty years have now passed since their compilation, such is their excellence and simplicity that with but one minor change they are still used in preference to every other method in working out Maya dates.

As in the case of many scientific discoveries, subsequent research has curtailed the field of their applicability, so it has been with Mr. Goodman's epoch making contribution to the study of the Maya hieroglyphic writing. At first it seemed as though the Maya graphic system treated only of arithmo-calendric matters; indeed until his death, Mr. Goodman himself never entertained any other view concerning the Maya inscriptions.

The writer, on the single occasion he was so fortunate as to have the privilege of meeting the great Maya scholar scarcely a year before the latter's death, well remembers in this connection the assurance and vigor with which Mr. Goodman defended this thesis.

It was at a lunch at the Faculty Club, Berkeley, in September, 1916; and the writer, because of his studies along the same line,

had the honor of sitting next Mr. Goodman, then just seventy-eight. It was a personal moment long anticipated and never to be forgotten.

The veteran scholar discussed the Maya texts for upwards of an hour, always emphasizing more and more the importance of the numerical elements, and finally in conclusion stating as his belief that it was not history of which they treated, but of arithmetic and the science of numbers; and that the only promising method of approach to the meaning of the yet undeciphered characters—the method by which he had made all his great advances, he added—was the mathematical, and not the phonetic, indeed he rejected the latter with some show of impatience.

And if in the course of subsequent research it has become necessary to abandon Goodman's arithmo-calendric explanation of the Maya inscriptions at least insofar as its exclusivism of application is concerned, rejecting his numerical values for many signs whose meanings either have been demonstrated to have been otherwise or else which yet remain to be deciphered, nevertheless practically all of the characters the meanings of which have been determined up to the present time fall into Goodman's arithmo-calendric category.

It is in fact, only among the undeciphered characters where Goodman's principles of decipherment have broken down, and the view now generally held concerning these latter is that some other avenue of approach beside the mathematic must be utilized if their meanings are to be worked out; and of such the phonetic offers the most promise.

But these later corrections, this subsequent filling up of earlier lacunae in our empirical knowledge of the subject, this supplying of details and the gradual rounding out of the whole picture, detracts but little from the magnitude of Mr. Goodman's original achievement; and mars, not at all, the enduring credit of his remarkable discoveries, since he will always be remembered among students of Maya archaeology as the one who contributed most in dissipating the mystery of the Maya writing.

CARNEGIE INSTITUTION,
WASHINGTON, D. C.

BOOK REVIEWS

METHODS AND PRINCIPLES

Religion and Culture. A Critical Survey of Methods of Approach to Religious Phenomena. FREDERICK SCHLEITER, Ph.D. Columbia University Press. New York, 1919. Pp. 206.

To wade through the mazes and the pages of speculation upon religion and its manifestations is no easy task, though several have encompassed it. To give, at the same time, a critical estimate of the various methods of approach is a far more difficult matter, and few have accomplished it. No one, we believe, has reviewed these methods of interpretation either so thoroughly or so intelligently as has Dr. Schleiter in *Religion and Culture*. The theories of anthropologists from the time of De Brosses and of Max Müller have been given more incisive treatment than we can find in any other author with whom the reviewer is acquainted. The fallacies and faults have been pointed out: the tendency to develop unilinear schemes by snatching the required data, and the required data only, from any region and any culture which supplies one of the rungs of the ladder; the tendency to see in outwardly similar practices a same actuating motive; the tendency to assign irrational motives to supposedly irrational minds constructed on logical principles supposedly different from our own. The tendency of Dr. Schleiter's destructive criticism is actually constructive, and serves a useful purpose by pointing out the pitfalls and suggesting the kind of wariness that is demanded.

It is, as the title declares, in large part a critique of methods, and a helpful critique. The technically trained philosopher will be at home in these pages, but many a plain anthropologist will balk at the terminology. The whole work is given a metaphysical setting, which is all right; but it is, perhaps, not necessary to quote Hume on the meaning of cause, granted that problems of causation ultimately carry one back, or forward, into the realm of philosophy. So will anything. But anthropologists are timid and are apt to shy from a chapter which begins, as does the final one, with the statement that,

In some respects diametrically opposed to a certain peculiar unconsciousness of the articulating mechanism involving an immediate acceptance of the juxtaposi-

tion of elements, which we have been discussing, is a highly conscious and rationalistic enquiry in which the mind attempts to grasp, by acts of deliberate apprehension, the causes of an event and then launches out boldly upon a more or less boundless path.

It encourages a temptation to wonder whether that is what we have done.

The reviewer assuredly is not one who considers method as unimportant, or as standing apart from the value of the result. Method and result are intimately related. In the matter of method there is a better and a worse, a more fruitful and a less fruitful. Any incisive critique of methods is, therefore, a direct or indirect contribution to result.

Moreover, I do not take exception to any of Dr. Schleiter's inductions. He has shown the logical development of speculation upon various themes pertaining to religion, a logical development which has, if we select the data, a definite historical sequence. At the same time, one must wonder to what extent any deliberate and hard and fast method works—except for a time and in the hands of a given investigator occupied with his special problem.

Do these hard and fast methods yield more in attaining results than the rules of logic yield in the discovery of new philosophic truth? I doubt it. Just as the rules of logic follow upon the heels of thought, though at the same time embodying that thought, so method is, perhaps, what we derive after the problem has been successfully grappled with. Tylor was wrong in the sense that any genius is wrong whose day of activity has become a matter of history, and yet he was profoundly right in spite of his method no less than because of it. The worth of the investigation depends upon what can be made out of it, how the problem is unfolded, and the actual results revealed. A knowledge of sound method will help to secure fruitful results but will not insure them.

There is nothing in Dr. Schleiter's work to indicate that he would take exception to this view, though it is a point which he has not taken under consideration. If the result of his study of method is to show that method is relatively unimportant, and is generally an analysis after the fact, his labors will have had a profitable result. It is ultimately a question of the method by which we should deal with methods. And so I place myself sympathetically by the side of Dr. Schleiter.

WILSON D. WALLIS

NORTH AMERICA

Corn Among the Indians of the Upper Missouri. GEORGE F. WILL and GEORGE E. HYDE. The William Harvey Miner Co., Inc., St. Louis, Mo., 1917.

The study of Indian corn, that most prolific of the grains, has been much forwarded by the publication of this little book which treats of corn among the Upper Missouri Indians. We have now authoritative data on corn of the Upper Missouri Indians and of the Iroquois Indians and there remain to be presented equally intensive studies of the corn of the Pueblo region. The authors have interestingly reconstructed from literature, from information of the living and by their own experiments the various aspects of the subject treated in the book under the chapter headings: History of the Upper Missouri Indians, planting and cultivation, harvest, corn as food, corn as an article of trade, the sacred character of corn, corn ceremonies, and varieties of corn. The number of tribal corns awaiting discovery so long after the decay of the American aborigines strikes one with surprise. The act of preservation of the favorite tribal varieties suited by long adaptation to the environment and through customary use to the needs of the people for food ceremony, etc., shows how intimately the Indians were tied to this culture plant. The authors and others are to be congratulated on their discoveries in this field. They have brought to light much that was believed to have been irrevocably lost. The book gives a fascinating history of maize which serves to enlighten the general reader, the student of material culture and the farmers who seek to improve the quality of their corn crop. The basis of improvement of corn as to the varieties suitable and most prolific for certain localities and uses are the old Indian stocks developed in environments which have become their own. The practical reactions of scientific investigation are well illustrated in this work in which it is shown that the breeding and crossing of native corns has been of immense value to modern agriculture. The book is well illustrated and is an example of the excellent work of the Torch Press.

WALTER HOUGH

Susquehanna Archaeological Expedition. Second Report of the Pennsylvania Historical Commission. Harrisburg, 1918. Pp. 117-151.

As one of the two joint-leaders of the Susquehanna River Archaeological Expedition of 1916, the writer is placed in a somewhat difficult position in reviewing the reports rendered the Pennsylvania Historical

Commission by Messrs. Moorehead and Donehoo, yet he finds that so many of the points raised by these two students of archaeology coincide so well with his own beliefs and theories that he is able to endorse most of their statements *in toto*.

The report is in two parts, the first of which is entitled "A Brief Summary of the Archaeology of the Susquehanna" by Warren K. Moorehead. Mr. Moorehead has given a short sketch of the history of the expedition, the expense of which, he omits to state, was largely borne by the Museum of the American Indian, Heye Foundation.

The finds along the river show the presence of two distinct cultures, an older Algonkian culture, the remains of which were found in sparse numbers from the source to the mouth of the river, and a later Iroquoian type occurring in specialized localities. Of the two cultures the second is the most important and interesting, as it relates to the hitherto scientifically unknown Andaste or Susquehannock, a southern branch of Iroquois. A large cemetery of these people was found near the mouth of the Chemung river, near Athens, Pa., in which 57 skeletons were discovered. With the skeletons were whole and broken pottery vessels, native clay pipes, triangular arrowheads of stone, and a few trade articles showing that these people had had slight early contact with the whites. The objects were of pure Iroquoian type, though slightly different from the known remains of the Five Nations, resembling more closely the Erie forms.

Nearer the Pennsylvania-Maryland border further Andaste sites were located, which yielded specimens of the same nature as those discovered near Athens, but mixed with them were a large proportion of Algonkian remains. It is a historic fact, however, that certain of the Algonkian tribes were colonized on these sites with the Andaste.

The second paper is entitled "The Susquehanna Archaeological Expedition" by the Rev. G. P. Donehoo. Mr. Donehoo also gives some account of the itinerary of the party, but goes further into the theoretical side of the work. The writer has no fault to find with Mr. Donehoo's deductions, although he disagrees with some minor details. Mr. Donehoo justly remarks in concluding:

No state in the Union affords a larger field than Pennsylvania for investigation of aboriginal occupation, and yet, less has been done in this state than in almost any other in the entire Union. Your secretary earnestly hopes that the work of this expedition may be only the beginning of such work in this state.

Mr. Donehoo's appeal is just, and well worthy of attention; here lies a large field for eastern archaeological research.

ALANSON SKINNER

ASIA

Racial Types in the Philippine Islands. LOUIS R. SULLIVAN. (American Museum of Natural History, vol. XXIII, pt. 1.) New York, 1918.

While making studies for the purpose of installing a somatological exhibit, Mr. Sullivan brought together the scattered observations of many writers on the Philippine population, which he uses as the basis for this study.

He gives us a brief review of the literature, the conclusions of earlier writers, and then subjects their data to a critical examination in an attempt to trace the racial affinities of the various Philippine peoples, and to determine whether or no there is any justification in assuming more than one racial type in the Islands, aside from the Negrito.

The study of hair, eyes, stature, cephalic index, and nasal index, shows that the population—other than the pygmy—can be roughly divided into three groups with the Christianized natives of the lowlands and the Pagan mountaineers at the two extremes, while the Mohammedanized natives are scattered throughout the range of the other groups. The average height of the Filipino is below 165 centimeters, while the tendency of the whole population is toward shortheadedness. The Negrito and all the Christianized groups, except one, have a cephalic index of 81 or above, while the Mohammedans range between 79 and 85. The Pagans, on the other hand, show two modes, one at 78 and the other at 81, but on the whole they are longer-headed than the other groups, a fact which argues against the theory that they are a mixture of Malay and Negrito elements for "it is difficult to understand how a cross between two short-headed groups would result in a long head (p. 36)."

The most interesting part of the work is that containing the tables of correlations and the deductions based on them. The first of these correlations is between the cephalic and nasal indices; the second is a graphic correlation of stature, cephalic and nasal indices. The latter yields us three forms of triangles, one of which contains nearly all the Christianized tribes and in which little variability is to be noticed; another contains the Negrito groups likewise presenting a distinct form; but considerable variation occurs when we compare the triangles representing the Pagan peoples.

In his general discussion, the author comes to the conclusion that the data used seem to indicate that the bulk of the population may be included in three racial types—Malay, Indonesian, and Negrito. It should be noted, however, that the term Indonesian, as used by Sullivan,

is not that used by many other writers. Here it refers to those people, the totality of whose characters suggest Mongoloid affinities, but less pronounced than those of the Malay; who have straight or wavy, black or dark brown hair; in whose eyes the Mongoloid fold is less common than in the Malay; whose heads are the longest in the Islands; but whose noses are short and wide.

Comparing the Philippines with the neighboring countries, Sullivan finds that the anthropometric data available seems to indicate that the pre-Dravidian element of the Malay Peninsula—represented by the Sakai, Senoi, and others—is not present in the Philippines; that the Indonesian type—represented by the Dayak, Murut and other groups of Borneo and nearby islands—occurs in the Philippines in the Bontok, Nabaloi, Ifugao, etc.; while the Malay type inhabits the coast regions of nearly all the territory under discussion.

Special emphasis should be placed on the author's warning that the racial relationships in the archipelago are not as simple as the summary would suggest, or that any one of the tribes mentioned is purely representative of one racial type (p. 55). Although the average of the population may justify us in assigning tribal or cultural groups to one or other of the divisions enumerated, it should not be inferred that there is anything approaching a pure "Indonesian" tribe in the Philippines. The greatest mixture occurs in every group and village of the Pagan and Mohammedan tribes, and only to a slightly less degree among the Christianized or "Malay" peoples.

Mr. Sullivan evidently finds considerable difficulty in reconciling the "Bontok Igorot" measured by Jenks with those described by Kroeber. The same difficulty was met by the reviewer until it became evident that the latter correspond closely to the Lepanto-Benguet Igorot described by Bean, and the Ifugao of Barrows. A glance at the graphic correlations in fig. 6 makes this point quite evident. About one third of Dr. Kroeber's subjects came from Alap, a village which is near the southern end of the Bontok culture area, but whose inhabitants evidently are more closely related to the people of the south than are the Bontok proper.

The paper is the first important résumé of the entire subject, and as such it brings forcibly to our attention how meager is our information concerning a large part of the Philippine population. Doubtless several of Mr. Sullivan's classifications will have to be changed in the light of fuller data, but this clear, concise presentation of the available material at this time is most welcome.

FAY-COOPER COLE

Having, however, no opportunity to satisfy ourselves that such an assumption is correct, we are obliged to accept the melody as it stands, but with the revised phrasing suggested.

Obvious errors on the part of the transcriber occur in Nos. 6 and 11. The former is a melodic theme and its repetition, which are alike in all but the final tone. The same plan should hold for the position of the measure bars in the first as in the second case. Thus instead of



we should expect

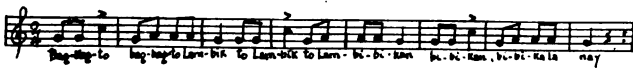


or

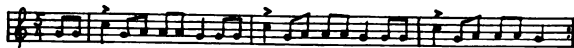


It is immaterial which is selected except that shorter measures are simpler. The principal point is that the song is composed of two parts, each developed in three little sections. That Dr. Kroeber saw this is indicated by the position of Z.

In No. 11 the presence of the accent reveals the fact that together with an inconsistency similar to that in No. 6, the melody has been metrically misconceived. A very common error in taking musical dictation is to assume that the first tone heard is on an accented beat. Its proper place in the metrical division can best be determined by referring it to the accents which subsequently occur and to phrases in other parts of the song which show identical melodic situations. Thus



is properly



The words have obviously been adapted to the melody. Note the repetition of syllables to fill the discrepancies.

This confirms the division of the tune into three sections, determined not only by the strong accents but also by the melodic composition.

The point which particularly interests Dr. Kroeber is the determination of the Nabaloi scale. He observes the tendency of transcribers

familiar with our systems to unconsciously adapt music heard to our scales. This is especially likely as it is necessary to use our notation which, after all, provides only for a few out of many possible pitches within the octave. He feels however, that the melodic inaccuracies which occur from these circumstances are unlikely to extend beyond a standardizing of slight deviations or vaguenesses of pitch not exceeding a fraction of a semitone.

Although Dr. Kroeber remarks that many primitive people have much less feeling for tonality than we exact, he assumes for argument that some tonic must exist in accordance with which the other tones of the scale may be determined in order. He realizes that there are several places in a song with which a tonic feeling might be associated but says that the one way to determine with which of these conditions the tonic actually may be connected is to proceed by the trial and error process. He thus assumes that the song ends on the tonic. For convenience and simplicity he then calls every final tone C, and accordingly transposes each song so that its original interval relationships to this "tonic" may be preserved. Using C as a point of contact for the resulting groups of tone material comprising each tune, he derives a composite scale of more than an octave with the following interval relationship in which this "tonic" appears near the middle: F A \flat B \flat c e \flat f g. It is a very interesting scale composed of two identical halves with F as initial point for the former half, c for the latter. He makes the surprising discovery that the scale ranges more than one octave, but the greatest range in any melody is less than an octave and that clearly there is no feeling for the octave as an interval.

For six of the songs, not including the two duplicate melodies which would make eight, he finds that the tones fall within this scale, although in three of them there is not a complete conformity in range or choice of tones. The four remaining agree neither with the preceding six, nor with each other except that they replace the minor third by the second. Other discrepancies are two substitutions of A for A \flat and one of E for F, which altogether seem rather numerous and persistent for such a small group of songs. Disregarding them, three more songs fit the scale, but one, No. 6, stands apart. To explain the presence of the second rather than the minor third in four cases, Dr. Kroeber suggests that they are a fluctuating attempt at the same interval or that the transcriber did not hear them correctly. This theory is untenable, first because a half step is really a very appreciable interval, as great as the entire range within which, but a half step higher, the third usually varies from minor

to major; secondly, the difference in tonal character between the second and third is much more marked than that between a tonic and its octave or fifth so that their confusion, especially by the transcriber who had some European musical training, is very unlikely. He adds that at any rate the two substitutions of A for Ab and the one of E for F could be similarly equated with the more regular Ab and F, although how he reached this conclusion is difficult to determine, especially as the F is the octave of the tonic which certainly would not be confused with the seventh even if the octave as an interval were not used, a fact not conclusively proved by this small collection of tunes. To better account for the three songs which fit the scale than by disregarding the discrepancies, Dr. Kroeber assumes that the tonic may not invariably occur as the final tone but may be that directly above or below it. However, if we begin making such allowances the whole structure of the premise falls down, and by trying a sufficient number of possibilities all songs could be made to fit any scale selected. Dr. Kroeber finds that in two cases the scheme works, but that it does is wholly due to the limited number of tones available in any of the songs. Were he dealing with a Hindu scale where there are twenty-six divisions of the octave he might yet be working on the problem.

We have, however, just as much right to assume that the tonic is the first tone, or that on which pauses most often occur, or that which is oftenest repeated, or that which receives the greatest number of accents, or perhaps the most plausible of all, the lowest tone. Dr. Kroeber has not examined the songs from these standpoints, or at least has not mentioned having done so in his article, being satisfied with his first analysis. Let us examine them from the first and last standpoints, as possibly preferable assumptions.

Accepting the tonic as the first tone, calling this c and transposing the others accordingly, we secure the following table:

1.	F	G	A	c	d				
{ 2, 9.	F	G	A	c	d	e			
4.	F	G	A	B	c	d	e	f	g a
3.				c			e	f	g a
5.		G		Bb	c	d			
6.			A	B	c				
7.					c	eb	f	g	bb
8.			Ab		c	eb			
10.			A		c	d	e		
11.					c	d		f	
12.		G		Bb	c	d			

In No. 4, which is in all respects except one changing note exactly the same melody as Nos. 2 and 9, we find an extra tone B. We have, under

the circumstances, every right to include it in the scale since it occurs together with the other tones, although its use here argues that it is relatively unimportant. We see that six of the songs, Nos. 1, 2, 4, 9, 6 and 10 belong to the same scale although not all the tones are represented in every case, by no means a necessary condition. On the other hand, Nos. 3 and 11 contain the same tones but in the octave above the tonic rather than in that below. This does not affect the scale as a group of tones and transposition an octave up or down is always permissible, so that in all eight songs suggest one scale system. Of the remainder, two, Nos. 5 and 12, add B \flat , one, No. 7, b \flat and e \flat , and one No. 8, A \flat and e \flat . Combined, these tones are:

F G (A \flat) A (B \flat) B c d (e \flat) e f g a (b \flat)

The problematic tones are placed in parentheses. If similar tones be transposed to come within one octave we have F G (A \flat) A (B \flat) B c d (e \flat) e, a diatonic scale with semitones between the second and third, the third and fourth, and the sixth and seventh. The first of these is one of the most frequent chromatics encountered in singing, and commonly distinguishes our minor from major tonalities. The second offers the biggest problem, as the perfect fourth is among the doubtful tones while the augmented fourth occurred with the regular scale (but only as a changing note with the fifth). However, we do not know that the B \flat does not form part of the regular system and b \flat a chromatic. At any rate we encounter it oftener than b \flat , three times to one. The lowered seventh is the sixth partial of a fundamental tone and not particularly difficult to hear in the tones emitted by a vibrating body whose fundamental is low in pitch. In some parts of the world it was used long before the major seventh, and its presence here should not occasion surprise.

The question remains, after settling on the tones of the scale whether their order should not begin with the tonic. This appears reasonable. Certainly it is as permissible to transpose lower tones an octave higher as to do the reverse, even if in the songs some tones of the scale are habitually used below the tonic. Therefore the scale should be written

c d (e \flat) e f g (a \flat) a (b \flat) b

The only difference of tone relationships caused by this arrangement rests in the loss of the semitone between the fourth and the fifth, namely b, and a gain of a minor sixth. The principal tones remain the same. The fluctuation of thirds and sixths is just as it is to be found in the majority of musical systems,—common, distinguishing the major or

minor mode as the case may be. It seems that on the whole this solution is more satisfactory than that achieved by Dr. Kroeber, more in conformity with what might be expected from the auditory impression gained when hearing the songs, and that the discrepancies are fewer and explained more logically.

However, for the sake of argument, let us take the lowest tone as tonic. The following table results;

1.	c	d	e	g	a	
2, 4, 9.	c	d	e	f#	g	a
3.	c		e	f	g	a
5.	c		eb	f	g	
6.	c	d	eb			
7.	c		eb	f	g	bb
8.	c		e		g	
10.	c		eb	f	g	
11.	c	d		f		
12.	c		eb	f	g	

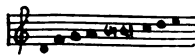
Note, in this table as well as in the other, the frequent appearance of the fourth and especially the fifth in connection with the tonic. The result is two distinct scale groups, one comprising c d e f (f#) g a b to which seven songs conform, purely major, with one solitary instance of a chromatic; and the other c d eb f g bb to which the other five belong. The similarity between this result and that of the first analysis is striking, particularly if we combine the major and minor scales in the second case.

It is evident that these analyses are, because of their foundation on arbitrary tonics, quite as open to criticism as was Dr. Kroeber's, but that their results do not involve as many discrepancies which are conflicting, as did his. If we could discover a tonic, the exact nature of the Nabaloï scale or scales could be easily solved. Without direct information from the people themselves, or an investigation of their musical instruments, the determination of their scale would be a difficult matter. Were there enough examples of songs, the scale might be determined without these aids by comparing the tone relationships as they appear in each song, and using as points of contact the most characteristic tone groups. However, this would be an extremely complicated procedure, a description of which would be too long for a review, especially as several possibilities are open in the way of combining the tonal content of the songs, as they are given here in notation, a choice of which would depend on several governing circumstances and the personal opinion of the analyst. Perhaps a brief sketch may be permitted.



Clearly a major hexatonic scale or tone group such as is employed in Nos. 2, 4, 9, which is a major seventh in range, is fuller than the other groups and probably comes nearer to the complete Nabaloi scale of major character than do the others. No matter what the tonic may be, the song is major in feeling, because of the play on two different groups of three tones each which extend over major thirds and are separated by whole step intervals. Nos. 1 and 8 belong to this same tone group, although confined to a smaller number of tones. Whether or not a perfect fourth might be included in the order of tones as arranged here from lowest to highest, as part of a more complete scale, cannot be settled without a larger collection, although Nos. 3 and 11 would suggest that its simple interval relationship had been felt. We are also doubtful of the permanent value of b^{\sharp} as an augmented fourth and we exclude it when speaking of the scale as hexatonic. The tonal content of No. 11 could have been derived from the second, third and fourth tones of the hexatonic scale.

There is also an appreciation of minor values as evinced by No. 7, where two minor thirds occur, one above, the other below, the characteristic formation of three tones, which also appear, as far as interval construction is concerned, in the upper and lower halves of the hexatonic scale. Nos. 5, 10, and 12 may belong to either system, for it is easily seen that they have points in common. If the b^{\sharp} found in No. 9 (transposed to the pitch of 2 and 4) be taken as achromatic in the major hexatonic system, No. 3 will be seen to possess an interval structure which corresponds to that lying from the second to the highest tones. No. 6 with its semitone, would also then coincide in tonal structure with the third, fourth, and fifth tones of the same set. At any rate, all of the songs involved will be found to fit, in tonal structure and relationship, either with the major system of No. 9, which includes the augmented fourth, or the minor system of No. 7. Since the latter is in its interval formation exactly the same from e to b as the major system is from a to e' , or from g to d' the same as from f to c' , disregarding in both cases the b^{\sharp} which is evidently not of first importance as a scale tone, they clearly are related. If we superimposed them, using as points of contact the tones $f-a$ and $g-b$ by transposing the system of No. 7 a step downward, we would obtain a system of intervals to which all the songs would be found to fit by making use of the semitone $b-c'$, in the case of Nos. 3 and 6. The scale would be as follows:



The reader must bear in mind that this last system has been evolved purely from a study of interval relations regardless of actual pitch or of a tonic. Within a scale like this last, no matter to what degree of the staff it might be transposed, would be found all of the tone combinations appearing in the tables of tonal content as they are given for each song, not as they are, in actual pitch, but as they are in interval relation, and some of them could be found in more than one place. That the groups differ somewhat in actual pitch when sung, should not be surprising, for voices differ and memory for absolute pitch is rare. Whether such a complete system is recognized as a whole by the people, or had its origin in an instrument is a matter of conjecture. Possibly there are two or three smaller systems like a major hexatonic, a five-toned scale as in No. 7 and a tone succession like that of No. 6. We can not tell without a larger collection of songs. The tone material of the two additional songs given by Dr. Kroeber on p. 203 presumably belongs to a major hexatonic system like that of Nos. 2, 4. This is particularly true of the first. That of the second could have been taken from the second, third, fourth and fifth tones of such a system.

The points brought out by Dr. Kroeber in the paragraph on intervals, and in the section on rhythm are interesting. Those which the present writer would call in question have already been covered by these remarks and will be evident to the reader without further discussion.

HELEN H. ROBERTS

A propos d'une carte javanaise du XV^e siècle. GABRIEL FERRAND.
(*Journal asiatique*, 1918, II, pp. 159-170.)

To some extent, this article is of interest to Americanists. Alfonso d'Albuquerque, in one of his letters addressed to Dom Manuel, King of Portugal, and dated April first, 1512, describes a chart made by a pilot of Java, the geographical names being written in Javanese characters and comprising among others such names as the Cape of Good Hope, Portugal, and the country of Brazil (terra do brasyll). As d'Albuquerque affirms that this Javanese chart was well known in 1511, M. Ferrand dates it back in the fifteenth century, and remarks that, even if merely the first years of the sixteenth century would be retained, the problem remains as to how a Javanese cartographer at that time could have had cognizance of Brazil. I should even go farther and suggest that the foundation of the said chart might be traced to several centuries earlier; for the Javanese, as M. Ferrand very aptly points out on the basis of

documentary evidence, have practised navigation from very early times, and naturally constructed charts of their sea-routes. These were gradually perfected, and new discoveries were added to them, as occasion offered. Thus it is perfectly intelligible that between 1499 or 1500 (the dates of the Spanish and Portuguese discoveries of Brazil) and 1512, the name of Brazil might have become known in Java, and certainly through the medium of the Portuguese who coined the name Brazil, and thus was duly placed on the Javanese maps. The "Terra de Brazil" is entered on the Lenox Globe of *circa* 1510 (J. Fiske, *Discovery of America*, vol. II, p. 120), and our cartographers familiar with the early maps of South America might be able to tell us on what map the name Brazil appears for the first time. An idea which should always remain uppermost in our mind is that the world is so small, has always been small, and was made smaller than ever before through the discovery of America.

B. LAUFER

SOME NEW PUBLICATIONS

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DISCUSSION AND CORRESPONDENCE

WESTO AND CHISCA

THE intrinsic importance of the Westo enigma would not, perhaps, justify further discussion in these pages.¹ But the ramifications of the problem are wide, and many deductions may be drawn from any solution adopted. The most rigorous criticism of all the evidence is therefore imperative at this stage.

In an effort to close an annoying gap in classification Dr. John R. Swanton has recently argued for the identity of the Westo with the Chisca of the Spaniards and the Cisca of the French. Chisca or Cisca in turn he regards as one of the several divisions or migrations of the Yuchi. Accepting as he does my identification of Westo and Rickahokkans, he has found in his formula of Yuchean affiliation a solution for three of the most persistent puzzles of southern Indian synonymy.

With Swanton's identification of Chisca-Cisca and Yuchi this note is not primarily concerned. From the location of the Cisca in the La Salle accounts and in the Franquelin map² of La Salle's discoveries, on the upper waters of one of the southern tributaries of the Ohio, they might be either Yuchi or Shawnee. The removal of some of the Cisca to Ft. St. Louis with bands known to be Shawnee lends weight to the latter surmise. Other evidence which Dr. Swanton adduces, however, tends to substantiate his assumption that they were indeed Yuchi³—in itself a contribution of no little value to the systematic classification of the southeastern tribes.

Dr. Swanton has rightly laid emphasis upon the fact that the Yuchi, like the Shawnee, early disintegrated into a number of more or less separate groups. To the Tennessee river and Savannah river groups noted in

¹ See *American Anthropologist*, vol. XX, pp. 331-337; vol. 21, pp. 213-216.

² Reproduced in C. A. Hanna, *Wilderness Trail*, vol. II, p. 92.

³ The following items may be of interest in this connection. In 1750 two South Carolina traders, Peter Randon and Stephen Forest, were licensed to trade among the Lower Creeks, and to each were assigned the same three villages, including the "Uchees" and the "Chisquitooloosasa," "in the Forks of the Lower Creeks." *Indian Commissioners' Journals* (MSS., Columbia, S. C.), June 21 and July 5, 1750, vol. II, pp. 150-151. In a later list, of 1764, "Chiscatalousa" was again named as a Lower Creek town with thirty "gun men" and one hundred and fifty inhabitants. *Public Record Office, Board of Trade Papers, Plantations General*, vol. XXII, p. 165.

my former discussion of this matter, he adds mention of the Ogechee and the Chisca.¹ He finds no logical difficulty, therefore, in assuming the existence of a Westo tribe of Yuchi. And, indeed, the difficulties which confront this hypothesis are not logical, but historical. The problem remains, to identify the Westo certainly with some group known to be Yuchi. The objections to identifying them with the Savannah River division (the Hogologees of Swanton's classification) I have previously pointed out, and Dr. Swanton now concedes that the migration of the latter "*may have been* subsequent to the expulsion of the Westo in 1681"—a concession which is fatal to the argument from location as it was originally advanced by Swanton and Speck. Though in one part of his latest contribution Dr. Swanton appears to find new support for that argument in a Spanish document of 1662, in summing up he has chosen rather to avoid that issue and to solve the problem by identifying the Westo, no longer with the Savannah River group, but with another tribe, probably Yuchi, whose presence east of the mountains in the seventeenth century can be positively asserted: the Chisca or Cisca.

Extended comment on the two very interesting—and very obscure—documents which Dr. Swanton quotes is not in place, in view of the clear-cut counter evidence cited below. Dr. Swanton's interpretation, though ingenious, is perhaps over subtle. The passages in which he finds references to the southern movement of the Rickahockans and to the expulsion of the Westo are open to other explanations, though it may be admitted that the coincidences are striking. At most they justify a conjectural identification (such as that which I set forth in my suggestion of a possible Iroquoian affiliation), to be confirmed or rejected in the light of further studies. And in this case investigation reveals the following pertinent fact:

"Two days before my departure" from the Westo town, Henry Woodward recited in his Westo narrative (1674), "arrived two Savana

¹ In the matter of terminology, after examining a large number of English references to the several divisions of Yuchi, I have been unable to find such regularity as Dr. Swanton has asserted. For instance, the Moll map of 1720 shows "Tohogalegas" on the Tennessee river, "Tohogaleas" on the Savannah, "Ewches" on the Altamaha. An earlier reference to the Savannah River tribe, in the *Commons House Journals* (MSS., Columbia, S. C.) of April 23, 1709, exhibits a variant of the Algonquian form, "Tohogoligo." On the other hand, the supposed Muskhogean form appears in the description of the Tennessee river, on the Nairne-Crisp map (1711), as the "Cussate alias Hockelege." The English recognized a close connection between the Tennessee and Savannah groups. When, in 1714, "Chestowee" town was cut off by the Cherokee at the instigation of English traders, the latter, it was charged, urged the Indians "to goe cut off the other Eucheas at the Savano Town too or else there would be no Travalng." *Indian Commissioners' Journals*, May 5, 1714.

Indians living as they said twenty days journey West Southwardly from them. There was none here that understood them, but by signes they intreated freindship of the Westoes, showeing that the Cussetaws, Chaesaws and Chiskers were intended to come downe and fight the Westoes. At which news they expeditiously repaired their pallisadoes, keeping watch all night."¹

The identity of the allies of the Kashita has been obscured by the alterations which the editor of the Shaftesbury Papers, Langdon Cheves, made in the text at this point. He printed, arbitrarily, "Chesaws and Chiokees," which he interpreted Chickasaws and Keyokees. But in a foot-note he recorded that the copyist had written "Chaesaws and Chiskers." The editor of the *Calendar of State Papers*, moreover, has printed substantially those forms, which cannot be regarded as corruptions. Question might arise whether the "Chaesaw" were Chiaha, as seems likely; but "Chiskers" or "Chiskews"² can only mean Chisca.

Since, then, the Chisca were among the numerous enemies of the Westo, the theory of their identity must be rejected.

VERNER W. CRANE

ANN ARBOR,
MICHIGAN

NOTE ON NAVAJO WAR DANCE

ON the night of September 30, 1918, I saw in the neighborhood of Houck's Tanks, New Mexico, a performance of the *nda* or girl dance part of the Navajo war dance which figures as a curing ceremonial. On comparing my notes with the account of the entire ceremonial given by the Franciscan Fathers,³ my observations seem to supplement in minor particulars the careful analysis of the Fathers.

Guided by a Navajo who came out from his hogan to answer questions and given a lift in one of the many wagons bound for the encampment, I arrived there at 9 P.M. The place was about three miles north-east of Houck. The circle of wagons, of horsemen, and horsewomen, and of sitting or recumbent figures was lit up by several small fires and, later, when the dancing began, by a huge fire on the edge of the circle opposite the choir. The choir of ten or twelve younger men were singing, standing close together about a drum and swaying a little to the rythm. The singing continued for an hour or so, then paused during

¹ Woodward's relation is most accessible in Salley (ed.), *Narratives of Early Carolina*, pp. 130-134. The text is reproduced from that published in *Collections of the South Carolina Historical Society*, vol. v, pp. 456-462, which was edited by Langdon Cheves.

² *Calendar of State Papers, America and West Indies*, 1669-1674, p. 634.

³ *An Ethnological Dictionary of the Navaho Language*, pp. 366-76. St. Michaels, Arizona, 1910.

the building of the big fire to be resumed and kept up with but brief breaks until dawn. About 10, after the fire was made and a little while before the singing was resumed, a girl crossed the circle, carrying upright a staff about three feet long surmounted by what looked like a bunch of yellow bloom and with ribbon streamers and two or more pendant eagle feathers. This was the ceremonial rattle-stick and it was carried, I was told, by the daughter of the medicine-man in charge of the ceremonial. (It was "like the cross.") This girl was accompanied by two or three girls bundled up like herself in the usual black blanket and wearing the usual long full skirt and the usual moccasins. The girls wandered around a little, then each selected a horseman from those who had drawn up closer to the edge of the circle. Meanwhile the choir resumed and other girls wandered into the circle, sometimes single, sometimes in twos or threes. A girl would first take hold of the horse's bridle and attempt to drag the horse forward. Horse and rider pulled back. In one case a girl was pulling so hard that the rein gave way and she fell over backwards. After a little the girl would take hold of the rider's coat or his hand and tug at him with increasing vigor and never yielding persistence. The rider would pull back, perhaps for two or three minutes only, perhaps for as long as ten or fifteen minutes. As a rule no words were said, but in one case I noticed the girl and boy talking together after he had slipped off his horse. During this roughhouse the girl would try to pull the rider or perhaps the recumbent man to his feet who would laugh a little or grin with exactly the same expression as characterizes a white man when a girl exerts herself against him—an amused and indulgent expression suggesting sexual stimulation. The girls neither smiled nor looked perturbed, but stolidly went about the business of getting their partner. Succeeding, the girl grasped her partner's coat near the pocket and walked with him into the circle and then, still holding onto him, she began to single step around him with a fairly lively hop. He shuffled around after her, keeping his arms folded or his hands in his pockets. The two were about three-quarters back to back. The circuit followed was a matter of indifference. The dance songs were rather short, two, three or four minutes, and after a brief pause, during which the girl kept her hold on the man's coat, the same couple would renew their dance, dancing several times together. In certain cases I saw the man break away, pursued by the girl. In one case I saw the man running after the girl. Another girl came to her support and the man desisted. A dozen or more couples might be dancing at the same time. The girl with the rattle-stick was a noticeably indefatigable dancer, holding her stick erect in the dance.

"The girls are making money," said the Navajo in the automobile to which I was escorted about midnight. A man gives the girl he dances with from twenty-five to fifty cents. Only girls or celibate women are expected to dance. Were a married woman to dance, her husband would have nothing more to do with her. Any man might dance. (As a matter of fact, as far as I could see, only the younger people, girls, some as young as fifteen or sixteen, or young men, were dancing.) Relatives might not dance together. This was the second night of the three night dancing. The dance was for a woman who had been sick two years. It would cost her people a lot—sheep, blankets, etc. About the dance as a war ceremonial my acquaintance was non-communicative, even after I mentioned casually that I had heard of the dance as a scalp dance from a Zuñi who was riding over from Zuñi to see it, and expected to see a scalp, perhaps a Mexican's, perhaps a white man's, brought out on a pole early in the morning.

After midnight the dancing began to slacken. Girls began to look for partners on the outskirts of the group, and frequently the men seriously refused, moving away. Then about 1 A.M. the dancing stopped. For an hour longer the family in the automobile sat listening to the choir and then withdrew a few hundred yards to light a fire and eat a supper of roasted mutton, coffee, and layer cake before lying down for a few hours sleep.

After sunrise the encampment of about five hundred persons began to break up, the Houck residents getting off in their wagons and ahorse before the other of the two groups, a "bunch" from Red Rock (?) to the west. In our own unique automobile group breakfast was late and as I had gone supperless because of the pain of a sprained ankle it was with an ill grace I waited for a cup of coffee, waited with the mother and the girls and the baby until the men and boys had quite finished eating. The category of guest appears not to overrule the category of sex in Navajo practice, or, perhaps, unlike the Pueblo Indians where male and female eat together, Navajo are also unlike their town neighbors who serve guests more quickly than self.

Unfortunately I had to forego seeing the rest of this ceremonial and go on to Laguna where there was soon to be held a dance of the *chakwena*, masks closely associated with the war gods, a ceremonial which also included curing rites. Between the war cult and the curing cults there are, among Navajo and Pueblo Indians alike, close connections.

ELSIE CLEWS PARSONS

PROCEEDINGS OF THE AMERICAN ETHNOLOGICAL
SOCIETY, INCORPORATED

MEETING OF OCTOBER 28, 1918

THE Society met at 8.15 p.m. in the Academy room, with Dr. Clark Wissler in the chair. Dr. Frederick Schleiter delivered a lecture entitled "Religion and Culture," embodying a brief review of a forthcoming book by himself of the same title. The following abstract was given by the speaker.

The general theoretical work on religion attempts to deal with the entire subject as such and at large, free from the exigencies of time and place, thus disregarding, in large part, the actual ethnographic phenomena and presenting an abstract type. Attempts have been made to formulate the laws of religion and the order of its development upon the basis of (1) the intensive study of a limited geographical area or period of history and (2) data gathered from all parts of the world and all periods of history (the comparative method). In both cases the formulation of an abstract type is the result of the investigation.

One group of theorists has attempted to show that the idea of spirit represents the most primitive religious concept of man and that, secondarily, other ideas, rites, and ceremonies have been elaborated on the basis of it, whereas another group has contended that the idea of an impersonal magical power represents the most primitive religious idea and that concepts regarding spirits have only arisen later in history.

Both theories, however, completely disregard the historical importance of the phenomena of emanation and beliefs regarding the concrete powers, properties and virtues of various objects, such as stones, gems, etc., especially those which possess magnetic or electrical properties such as amber, the loadstone, etc. In cases of this type belief in an abstract, universally diffused magical power (*mana*) is not implied but the ideas involved are rather concerned with the specific potentialities of various objects and have played a very large and important part in the development of magic and religion.

If we consider causality in its relationship to magico-religious phenomena a peculiar and anomalous situation at once confronts us. It has frequently been assumed that primitive man is continually on the lookout for causes and that by means of their discovery he is enabled to

exert control over the processes of nature. This reduces causality to a purely rationalistic procedure. A dispassionate examination of widely diversified data, however, indicates that different mental processes have led to the attribution of a causal relationship between two or more elements. (1) Many superstitions, for example, involving causal relations, are not the result of a deliberate inquiry on the part of an individual but are simply accepted from his folkloristic background. (2) Again the repeated conjunction of events in nature may lead to the attribution of a causal relationship between them, as is illustrated in Hume's celebrated treatment of habit as a basis of all causes. (3) Emotional and affectivistic processes may lead to the formation of causal relations, etc. Bearing in mind these diverse mental processes which are involved in various causal relations and which have determined them we may say that there is here involved an excellent illustration of the process of convergence,—many diverse mental processes leading to the same result, *viz.*, that between two or more elements a dynamic relationship is predicated.

MEETING OF NOVEMBER 25, 1918

THE American Ethnological Society met in the Academy room at 8:15 p.m. with Dr. Clark Wissler in the chair.

Dr. George Bird Grinnell read a paper on the Cheyenne as Indian Traders. On the basis of the early documentary sources the speaker expounded the varied trade relations of the Cheyenne and other Plains tribes, including the Kiowa, Comanche, and Arapaho.

Dr. Southwick launched a discussion on the aboriginal manufacture of beads. Dr. Grinnell gave the traditional statements made on this point by the Cheyenne, while Mr. N. C. Nelson explained the character of the beads found in archaeological sites. Dr. Lowie asked the speaker whether he had been able to trace the early history of the Arapaho, whom he had mentioned as occupying the Black Hills at one time jointly with the Cheyenne. Dr. Grinnell answered that he had not been able to trace them back as far as General H. L. Scott in an article in the *American Anthropologist* some years ago.

The meeting was followed by a session of the Board of Directors, attended by C. Wissler, F. Boas, E. C. Parsons, P. E. Goddard, N. C. Nelson, R. H. Lowie. The Treasurer presented a communication from the Society's printer, stating that in consequence of the change in the rate of exchange he was suffering a serious loss in connection with the payment of his last bill. On motion of F. Boas the Board voted to

inform the printer that the Society is willing to pay the difference provided that its agreement with him remain the same as before with the exception that it shall pay 2.50 florins per page. Dr. Goddard moved and it was carried that President Kroeber of the American Anthropological Association be notified by the Secretary that the Society obligates itself to contribute \$50.00 to his fund for the liquidation of the *American Anthropologist's* debt.

MEETING OF THE BOARD OF DIRECTORS, JANUARY 21, 1919

THE Board of Directors met in the Secretary's office at the American Museum of Natural History at 2:15 p.m. Present: Dr. Wissler, Dr. Boas, Mr. Nelson, Dr. Goddard, Dr. Parsons, Dr. Lowie, with Dr. Wissler in the chair.

The Secretary presented his report, which was accepted.

The Treasurer read her report which was referred to an auditing committee to be appointed by the President.

The Editor presented a report explaining the difficulties of publication under existing circumstances and the progress made with the Jones volume. His report was accepted.

The following two names were proposed by the Treasurer as members of the Society: Mr. and Mrs. Henry Clews. They were unanimously approved for recommendation to the Society.

As a nominating committee the Board proposed the following: President, Clark Wissler; First Vice-President, F. W. Hodge; Second Vice-President, N. C. Nelson; Secretary, R. H. Lowie; Treasurer, E. C. Parsons; Board of Directors (in addition to the above), P. E. Goddard, A. A. Goldenweiser, T. Mayer.

On motion of Dr. Goddard it was unanimously decided to recommend Dr. Wissler for representative of the Society on the Council of the New York Academy of Sciences.

A budget was then prepared for 1919, itemized as follows:

For the <i>American Anthropologist</i>	\$350.00
For membership dues to the American Anthropological Association ..	90.00
For publications already begun	800.00
For new publications	500.00
For secretarial expenses of Treasurer and Secretary	10.00

\$1,750.00

The President appointed Mr. L. Spier and Miss Bella Weitzner as the auditing committee.

The meeting adjourned at 2:55 p.m.

MEETING OF JANUARY 27, 1919

THE annual meeting of the Society was held in the West Assembly room of the American Museum of Natural History on January 27, at 8:25 p.m. The meeting was called to order by the President, Dr. Wissler. The following members were present: F. Boas, M. Fishberg, P. E. Goddard, A. A. Goldenweiser, R. H. Lowie, T. Mayer, N. C. Nelson, E. C. Parsons, F. Schleiter, C. Wissler. The total attendance was about twenty-five.

The President called for the report of the Secretary, which follows:

SECRETARY'S REPORT

The present membership of the American Ethnological Society, Inc., divided into classes, is as follows:

Life members.....	13
Members.....	14
Fellows.....	67
Anthropological Fellows.....	21
Total.....	<u>115</u>

Since the list of subscribers of which the Secretary has record (11) is incomplete, this matter having been delegated to our agent, G. E. Stechert & Co., the total membership to be used for purposes of comparison is the above. It appears that since last year there has been an increase of four members. The Secretary regrets to announce the death of one life member, Dr. James Douglas, and of one fellow, Dr. Herman K. Haeberlin.

The Society held the usual number of meetings, the following being the titles presented:

(January) Clark Wissler, Cultural Problems of the Southwest.

(February) N. C. Nelson, The Archaeology of the Southwest.

(March) E. H. Morris, The Excavation of the Aztec Ruin, N. M.

(April) A. L. Kroeber, Factors Controlling Human Behavior as Illustrated by the Natives of the Southwestern United States.

(October) F. Schleiter, Religion and Culture.

(November) G. B. Grinnell, The Cheyenne as Indian Traders.

Owing to his sojourn in California the Secretary was unable to attend to the duties of his office until the summer of 1918. He desires to express his appreciation of the efficient manner in which they were discharged by Miss Marjorie A. Mallory, the Acting Secretary.

Respectfully submitted,

ROBERT H. LOWIE,

Secretary

The Secretary's report was accepted as read. The Secretary was then instructed to read the Treasurer's report, which follows:

TREASURER'S REPORT

Receipts

Balance on hand Jan. 1, 1918, Guaranty Trust Co.....	\$ 674.88
Balance on hand Jan. 1, 1918, Manhattan Savings Institution.....	2,476.31
Interest from Guaranty Trust Co.....	15.72
Interest from Manhattan Savings Institution.....	88.66
Dues from members.....	516.14
Carnegie Institution.....	900.00
	<hr/>
	\$4,671.71

Disbursements

Printing and postage.....	\$ 10.86
American Anthropological Association	
for 89 memberships.....	89.00
for publications.....	309.03
E. J. Brill, drafts for printing.....	950.62
R. Weber for sketches.....	15.00
Donation for deficit to the American Anthropological Association.....	50.00
American Museum of Natural History for attendant...	1.50, 1,426.01
	<hr/>
	\$3,245.70

Total Assets, January 1, 1919

On deposit in Manhattan Savings Institution.....	\$2,564.97
On deposit in Guaranty Trust Company.....	680.73
	<hr/>
	\$3,245.70

Respectfully submitted,
ELSIE CLEWS PARSONS,
Treasurer

Examined and found correct, January 27, 1919.

BELLA WEITZNER,
LESLIE SPIER,
Auditing Committee

The Secretary was instructed to read the Budget submitted by the Board of Directors (p. 470), which was accepted.

The Editor was called upon to report and explained the progress made with the publication of the Jones material.

The Board of Directors of the American Ethnological Society presented the following nominations for membership in the Society: Mr.

Henry Clews, 27 West 51st Street, New York City; Mrs. Henry Clews, 27 West 51st Street, New York City. They were unanimously elected.

The Secretary next read the report of the Board of Directors as a nominating committee (p. 470). All the proposed were unanimously elected.

Following the business session there was a paper by Professor Franz Boas on the Social Organization of the Kwakiutl. The speaker discussed the subject on the basis of new material secured since his work of two decades ago. He expounded the conflicting principles of transmission of ceremonial privileges through primogeniture and through transfer to a son-in-law as trustee on behalf of his son; also the correlated principles of bilateral and *de facto* matrilineal succession. The original type of organization seems to have been that of the bilaterally organized tribes to the south of the Kwakiutl.

A series of questions were asked by Drs. A. A. Goldenweiser, R. H. Lowie, and P. E. Goddard.

MEETING OF FEBRUARY 24, 1919

THE Society met in the West Assembly room of the American Museum of Natural History, with Mr. F. W. Hodge in the chair. There were many visitors and the following members were present: Boas, Goddard, Hodge, Hyde, Lowie, Nelson, Roberts, Saville, Skinner, Spier, Spinden, Sullivan, Tozzer.

Mr. Alanson Skinner presented a paper on Archaeological Explorations within the Limits of New York City. He first described a site at Throgs Neck, which gave evidence of typical Algonkian culture in the earliest layer, followed at a later period by the introduction of distinctly Iroquoian features, more particularly as regards pottery and bone work. Next the speaker gave an account of shell-pits and burials discovered at Clasons Point and of rock shelters at Inwood in the extreme northern end of Manhattan. Finally he referred to a recently discovered site in Brooklyn, which is to be explored by the Museum of the American Indian.

Mr. N. C. Nelson asked several questions and Mr. Alexander Cheno-weth described some of his own local discoveries.

Dr. H. J. Spinden then delivered a lecture on The Indians of Eastern Nicaragua, dealing more particularly with the Sumu and Miskito. The villages of the latter were the first on the mainland to be discovered by Columbus. The political organization of these tribes is loose, the head-men exercising little authority. The medicine men and especially the

Wind priests are more powerful than the so-called chiefs. As to social customs, child betrothal and polygamy are common, cross-cousin marriage is in vogue, and the mother-in-law taboo holds sway. There is a puberty ordeal. The type of house employed and other technological traits suggest a fairly recent cultural migration from South America. The blowpipe, however, is not known, and only the sweet (not the poisonous) variety of cassava is used. The most impressive ceremony is that of the Dead, at which a sort of bull-roarer is set in motion and from which women are rigorously barred.

MEETING OF MARCH 24, 1919

THE American Ethnological Society met in the West Assembly room of the American Museum of Natural History at 8:15 p.m., with Dr. C. Wissler in the chair. There were many visitors, among them Mr. Serge Geiman, a Russian anthropologist who accompanied an expedition to Tierra del Fuego. The following members were present: F. Boas, F. S. Dellenbaugh, P. E. Goddard, R. H. Lowie, N. C. Nelson, E. C. Parsons, T. M. Prudden, H. Roberts, L. Spier, C. Wissler.

Owing to serious illness in his family, Mr. F. W. Hodge was prevented from delivering the address on Excavations at the Ruin of Hawikuh, N. M., as announced. Instead, Mr. N. C. Nelson kindly consented to present a lecture on Exploration in the Southwest of the United States, which was copiously illustrated by lantern slides. He explained the several methods of archaeological investigation hitherto pursued, with reference to chronological problems and the population of the Pueblo area. The paper was discussed by Mr. Dellenbaugh, who contended for a larger population in 1540 than Mr. Nelson was willing to grant and raised doubts as to the chemical character of the glaze described by the lecturer on pottery of the Galisteo region.

MEETING OF MAY 7, 1919

OWING to a conflict with a general session of the New York Academy of Sciences, it proved necessary to postpone the meeting of the Ethnological Society, which had originally been scheduled for April 28.

Dr. Clark Wissler was in the chair and the following members were present: Donohugh, Goddard, Grinnell, Lowie, Nelson, Roberts, Schleiter, Spier, Spinden.

Dr. P. E. Goddard presented Observations on Apache Religion. He briefly sketched various ceremonial usages of the Arizona Apache, *e.g.*, the rites of adolescence, and touched upon the position occupied in native

consciousness by such cosmic forces as the sun and the thunder. Compared with the Navajo, the Apache exhibit many distinctive features of belief and practice in spite of a far-reaching resemblance as to mythology. Presumably the Apache represent more nearly the pristine condition of the southern Athapascan religion, while that of the Navajo has been affected by Pueblo contact.

Dr. R. H. Lowie spoke on Medicine Bundles of the Hidatsa Indians. He drew a distinction between the more or less secular age societies and the sacred bundle fraternities. Acquisition of a bundle involves two factors, heredity and purchase, since normally children buy their own father's bundle. The ceremonials connected with a particular bundle are graded. A person who has passed the entire series may buy the office of Singer, which is practically that of an officiating priest. A ceremonial Crier elected by the men of the village heralds all ceremonies and exercises certain specific functions. Altogether the bundle concept suggests that of the Blackfoot and is probably connected with it historically.

ROBERT H. LOWIE,
Secretary

ANTHROPOLOGICAL NOTES

Intensive archaeological exploration in the Haida linguistic area was carried on for three months during the season of 1919, by Harlan I. Smith of the Geological Survey, Canada. The work was conducted from two camps on the northeastern part of Graham island of the Queen Charlotte group, British Columbia, one at Masset and one at Tow hill, but reconnaissance was made along the whole coast from Yan opposite Masset for about thirty miles to Rose spit, one of the traditionally oldest homes of the Haida, and for ten miles southward along the east coast, and at Port Clements.

Shell-heaps were found at Masset, Masset townsite, Delkatla, back of Yakan point, back of Tow hill, and at Port Clements. Trees, stumps, and wind-falls were found on heaps at each of these places. Measurements and photographs were taken of these. Some of the photographs show the rings of annual growth of the trees. These evidences prove that the deposits were made before the first European visit to the islands. When these results have been studied a more exact minimum age for each of these deposits can be determined. Comparatively modern shell-heaps were found on Skonun point; another heap and other remains, on Rose spit.

The heap back of Yakan point is about 1000 feet long by 200 feet wide and over five feet thick. One back of Tow hill is seven feet thick. Some of the heaps are more than a mile from the sea and the intervening country has silted in in geologically recent times. The oldest sites show vast quantities of shells, while at the modern sites few shells, if any, are noticeable.

Objects of stone and bone were found, bone predominating. Among these may be mentioned: points made of bone such as may have been used for arrows, fish hooks or fish rakes, harpoon points made of bone, and wedges and awls of bone. A carving in bone of the typical north-west coast art was also found. Whetstones, notched adzes of stone, a notched axe or slave killer, and a fragment of a carved stone were found. No points of stone, celts or semi-lunar knives made of slate were seen. Two skeletons in anatomical order and some scattered human bones were secured from deep in the Yakan shell-heap. Bones, supposedly of the dog and caribou, and of many other animals, were found.

Interesting Chinese, French, and English materials from the modern heap at Rose spit were secured.

Mr. Smith also secured an ethnological collection of 129 specimens from the Haida Indians at Masset. These natives when first seen by him in 1897 used huge dugout canoes, wore woven spruce-root hats, and carried bundles wrapped in mats made of cedar bark. Today a few baskets are used but not one of the native objects is seen in general use and few are made even by the older individuals. The modern Haidas build excellent motor boats, fish for the trusts, and work in the aeroplane spruce industry. Totem poles which were worth thousands of dollars fifty years ago and were only possessed by the wealthy Indians can now be had from Yan at from \$1.00 to \$2.00 per foot.

DURING a brief period of summer fieldwork, Mr. C. M. Barbeau, of the Geological Survey of Canada, has added somewhat to the ethnographic information already gathered in previous years from the Lorette Huron halfbreeds. Old specimens and photographs of technical processes and people have been obtained; a few folk-tales and anecdotes recorded seem to be of Indian origin. Under Mr. Barbeau's direction, much has recently been added to the French Canadian folklore collections. Over one hundred and fifty folk-anecdotes based on ancient beliefs and customs have been recorded and over four hundred photographs taken. Mr. E. Z. Massicotte and others have also, in collaboration with Mr. Barbeau, collected several hundred versions of folk-songs and formulae.

A field trip extending from the latter part of June to nearly the middle of October was conducted by F. W. Waugh, of the Geological Survey of Canada, among the northern Saulteaux of Lac Seul, a lake expansion of the English river, which is a tributary of Lake Winnipeg. The main object was the study of general material culture, for which the region was found to be quite favorable. Among the subjects on which notes were recorded are: handicrafts, such as tanning, canoe-making, birch-bark basketry, snowshoe-making, the making of moccasins, toboggans, clothing, and dwellings; hunting and trapping methods; medicine; games; food preparation; and general folklore. A few notes were incidentally obtained on the Midéwiwin, which is still held at Lac Seul. Photographs were obtained of the ceremony, as well as of the various technological processes enumerated.

MR. W. E. ARMSTRONG of Cambridge University, England, where he enjoyed the instruction of Drs. Haddon and Rivers, has set out on an

expedition to New Guinea, more particularly to Ressel island. In traversing the United States he has visited some of the leading centers of anthropological research, such as the American Museum of Natural History and the Field Museum.

FROM *Petermanns Mitteilungen* we learn that Dr. Heinrich Cunow, editor of *Vorwärts*, has been appointed professor extraordinarius of ethnography and sociology at the University of Berlin and also curator at the Museum für Völkerkunde. Dr. Cunow is one of the most thorough students of kinship terminologies and attracted special attention by his theory of the Australian classes. A full exposition of his views was provided for American readers by Dr. Goldenweiser in *Current Anthropological Literature*, 1913, pp. 212-227. Cunow also produced an interesting essay on the social fabric of the Incas, his general position being comparable to that of Bandelier's work on Mexico.

DR. RUDOLF PÖCH has been appointed professor ordinarius of anthropology and ethnography at the University of Vienna.

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Organ of The American Anthropological Association, the Anthropological Society of Washington, and the American Ethnological Society of New York

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